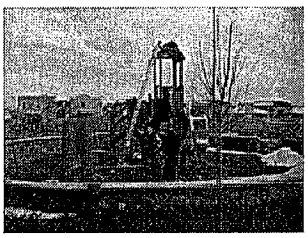
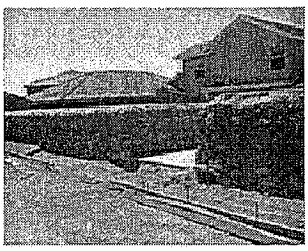
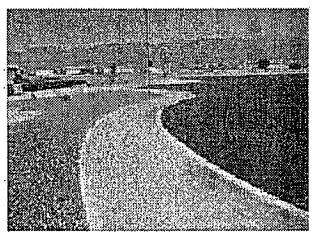
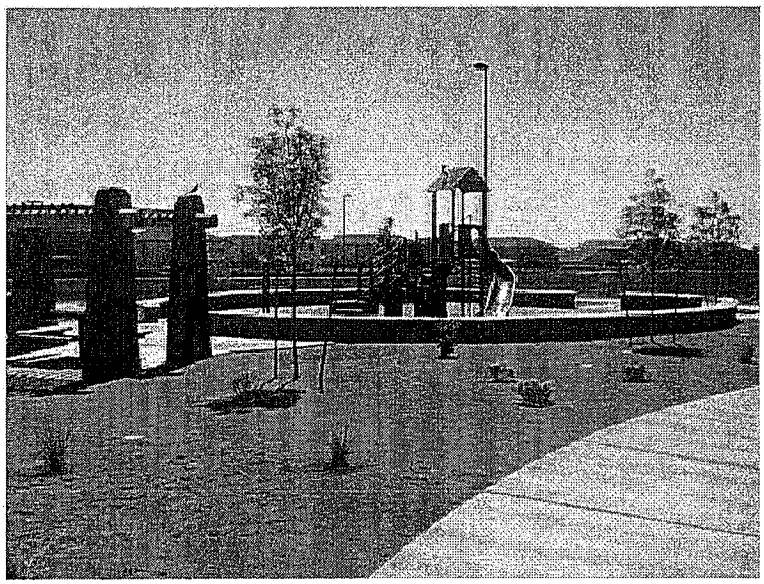
APPENDICES









Design and Construction Details

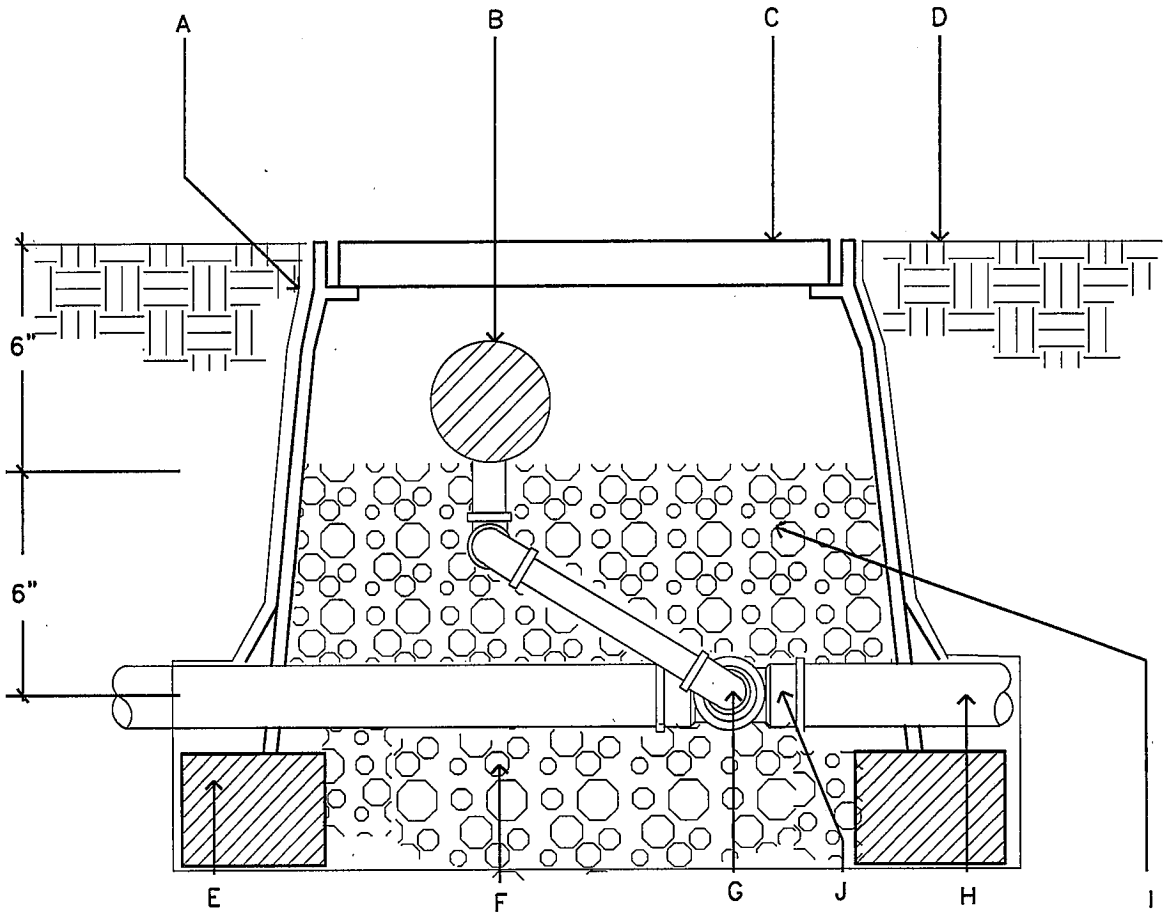
City of El Paso
Parks and Recreation Department

October 2012

El Paso
Parks & Recreation
www.elpasotexas.gov/parks

IRRIGATION DETAILS

CITY OF EL PASO PARKS & RECREATION



A. PROVIDE DEWITT PRO 5 WEED CLOTH ALONG SIDES AND BASE OF VALVE BOX INSTALLATION. TAPE TO ALL INLET AND OUTLET PIPE AND VALVE BOX WITH HEAVY DUTY PLASTIC 3M TAPE.
B. AIR RELEASE VALVE.
C. CARSON PRODUCTS, INC. 1419-18 (ABS) VALVE BOX WITH BOLT DOWN COVER, EXTENSIONS AS NECESSARY. COLOR TO MATCH FINISHED MATERIAL.
D. FINISH GRADE.
E. 8"X8"X16" SOLID CMU BLOCK @ EACH CORNER.
F. 1 CUBIC FOOT 3/8" WASHED PEA GRAVEL.
G. LASCO-PREASSEMBLED SWING JOINT.
H. IRRIGATION MAINLINE/LATERAL MAINLINE.
I. 6" DEPTH OF 3/8" PEA GRAVEL.
J. PVC TEE FITTING.

NOTE: PVC PIPE TO BE CLEAR OF VALVE BOX AND SOLID CMU BLOCK.

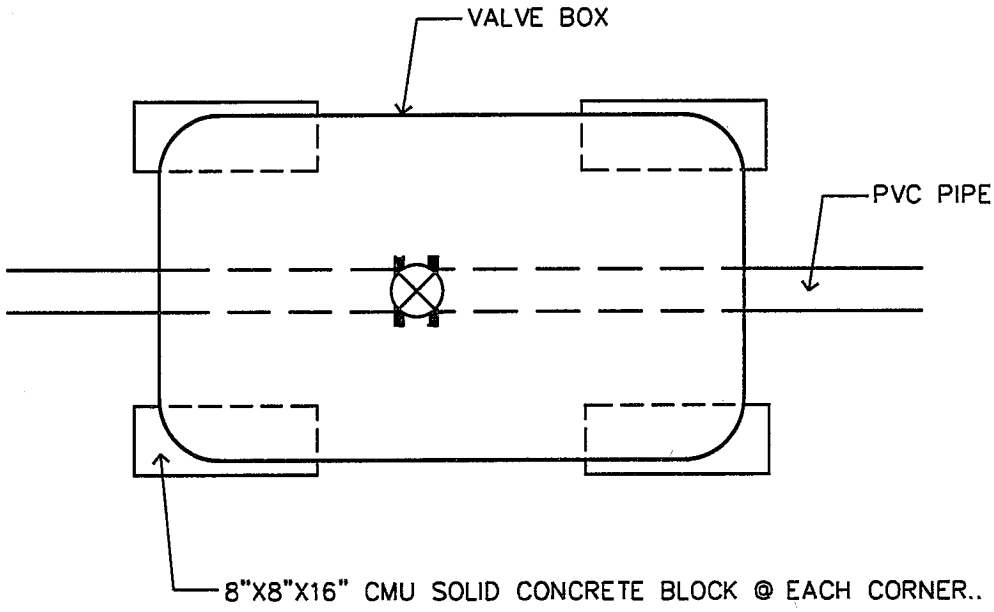
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

AIR RELEASE VALVE

NTS



NOTE: BLOCKS TO SIT ON WEED CLOTH ON UNDISTURBED SOIL. DISTURBED SOILS SHALL BE COMPACTED WITH TAMPER PRIOR TO SETTING WEED CLOTH & BLOCKS. VALVE BOX AND EXTENSIONS TO SIT ON BLOCKS. VALVE BOX AND EXTENSIONS TO HAVE A MINIMUM 2" CLEARANCE TO THE TOP OF PVC PIPE.

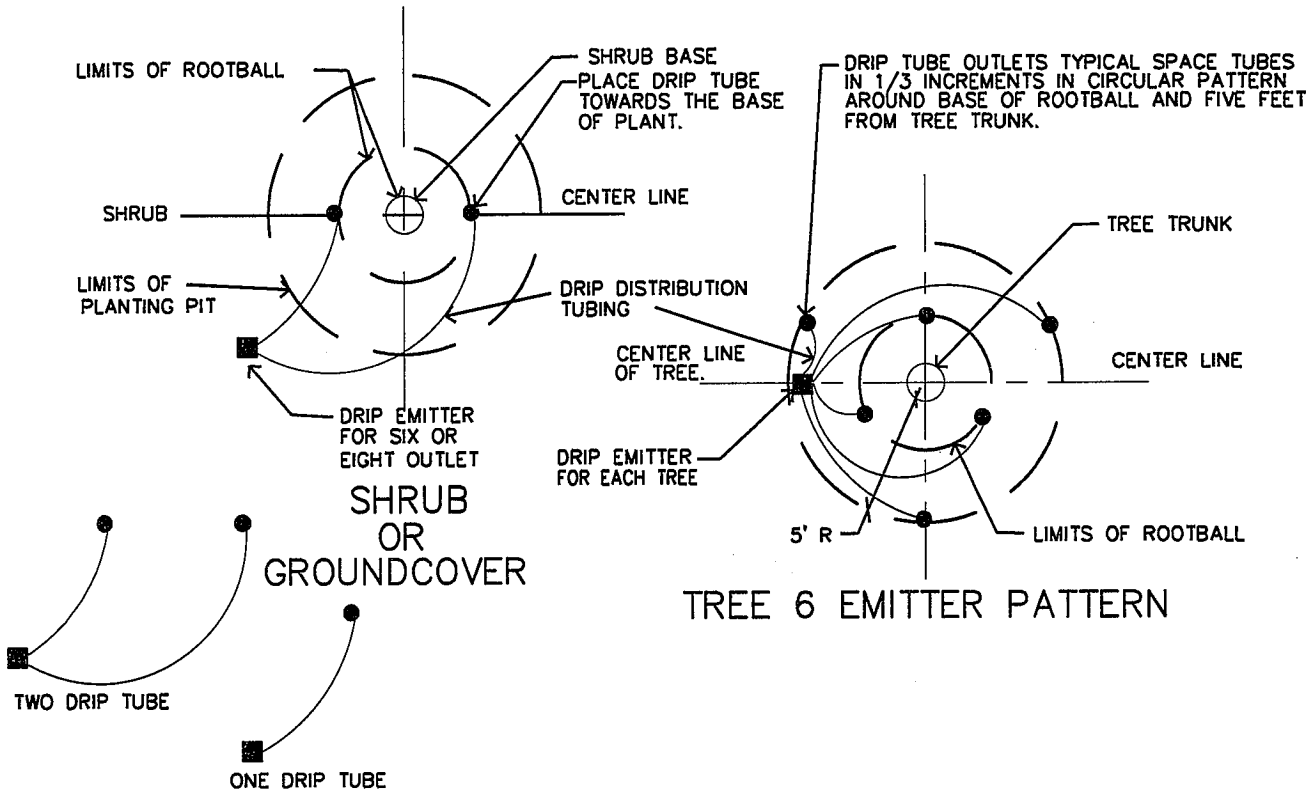
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

BRICK PLACEMENT ON VALVE BOXES

NTS



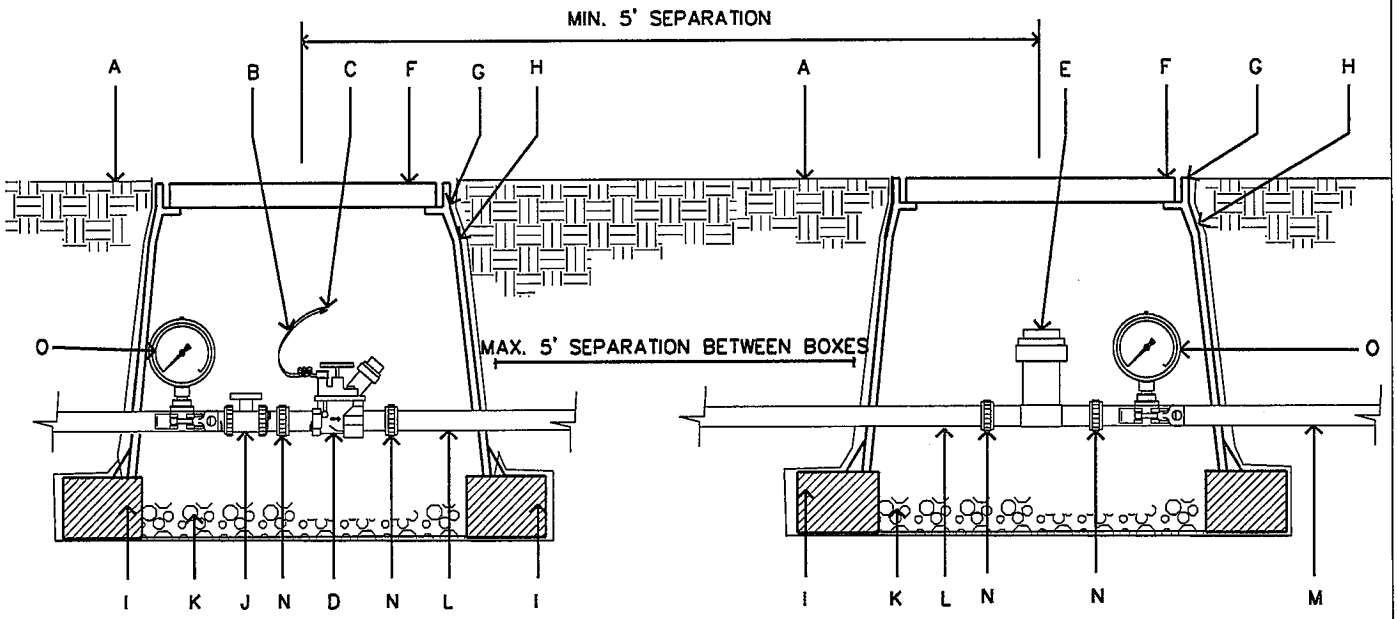
NOTE: PLACE PVC RISER, EMITTER AND BOX ON THE WEST SIDE OF THE TREE'S OR TRUNK, FIVE FEET FROM THE BASE OF TRUNK.

CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

DRIP EMITTER PATTERN FOR PLANTS AND TREE PLAN NTS



A. FINISH GRADE.
B. 24" WIRE LOOP.
C. DRY SPLICE CONNECTOR OR EQUAL.
D. AUTOMATIC VALVE INCLUDED IN CONTROL ZONE KIT. SEE IRRIGATION LEGEND.
E. BASKET FILTER STRAINER INCLUDED IN CONTROL ZONE KIT SHALL BE INSTALLED TO PROVIDE ACCESSFOR MAINTENANCE AND REPLACEMENT. SEE IRRIGATION LEGEND.
F. LOCKING VALVE BOX COVER FLAT LID WITH BOLT.
g. CARSON PRODUCTS INC. 1419-18 BODY (ABS) VALVE BOX W/BOLT DOWN COVER (COVER COLOR TO MATCH FINISH MATERIAL AND EXTENSION AS NECESSARY.
H. PROVIDE DEWITT PRO 5 WEED CLOTH ALONG SIDES AND BASE OF VALVE BOX AND BLOCKS TAPE TO ALL INLET & OUTLET PIPE WITH 3M HEAVY DUTY PLASTIC TAPE.
I. 8"X8"X16" CMU SOLID CONCRETE BLOCK @ EACH CORNER.,
J. BALL VALVE, INCLUDED IN CONTROL ZONE KIT, SEE IRRIGATION LEGEND.
K. 4" LAYER OF 3/8" WASHED PEA GRAVEL.
L. PVC PIPE SIZED PER PLAN WITH WELD ON THREADED FITTINGS ON EACH END.
M. LATERAL LINE
N. PROVIDE PVC UNION FOR PIPE SIZES LESS THAN THREE INCHES IN DIAMETER OR PROVIDE. FLANGES FOR PIPE SIZES THREE INCHES IN DIAMETER OR LARGER.
O. HORIZONTAL HYGIENIC PRESSURE GAUGE

NOTE: PROVIDE 1 PRESSURE GAUGE ON MAIN LINE UPSTREAM OF BALL VALVE AND ANOTHER DOWNSTREAM OF KIT'S PRESSURE REGULATOR. PROVIDE 5' SEPARATION BETWEEN BOXES. IF SPACE IS NOT AVAILABLE, PROVIDE A MIN. 5' SEPARATION AT CENTER LINES OF BOXES. SET GAGES HORIZONTAL TO BRE READABLE.

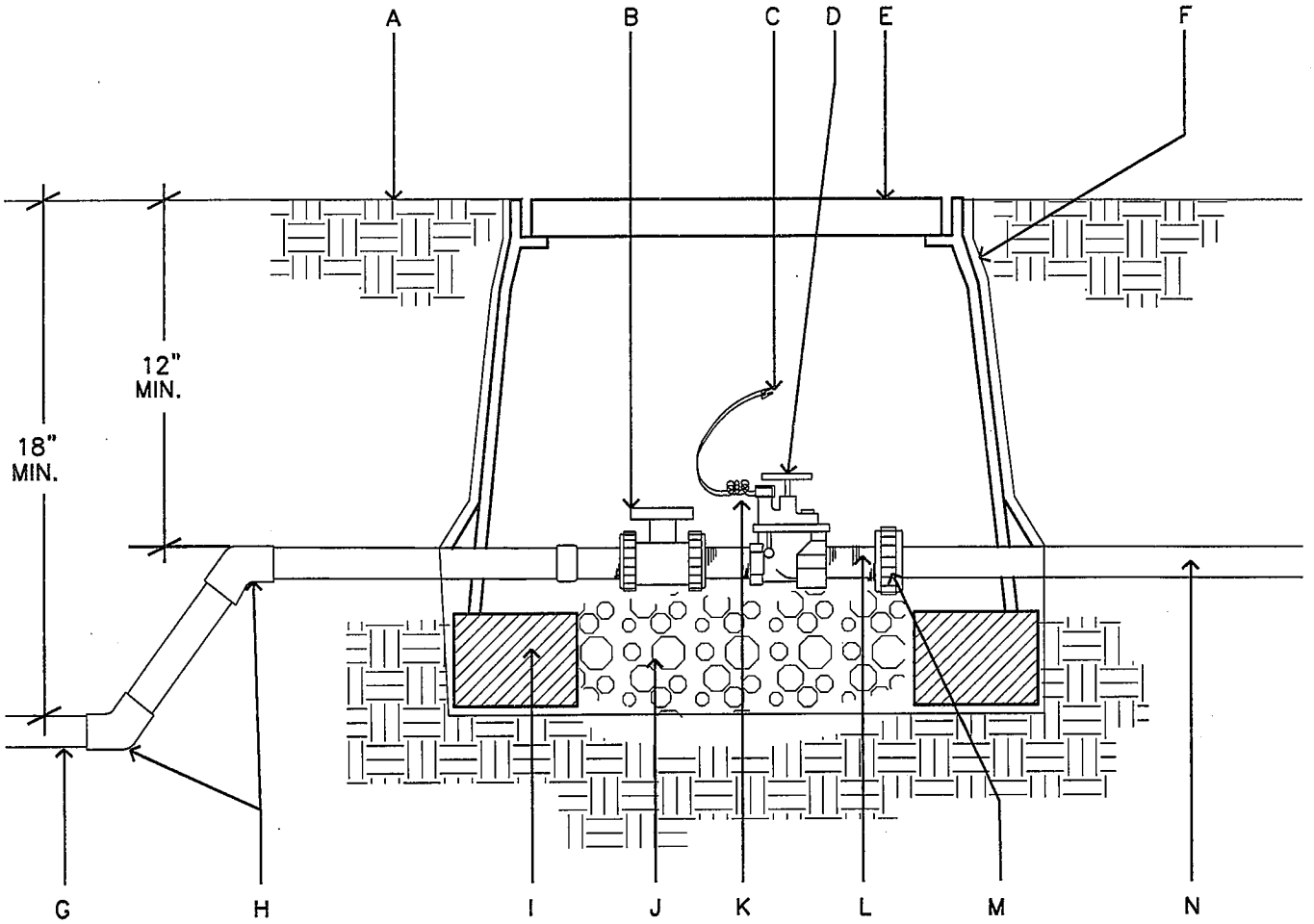
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

DRIP VALVE/ BASKET FILTER KIT

NTS



NOTE: PVC PIPE TO BE CLEAR OF VALVE BOX AND SOLID CMU BLOCK.

A. FINISH GRADE.
B. BALL VALVE.
C. DRY SPLICE CONNECTOR OR EQUAL.
D. ELECTRIC VALVE –SEE IRRIGATION LEGEND.
E. CARSON PRODUCTS INC, 1419–18(ABS) VALVE BOX WITH BOLT DOWN FLAT LID COVER TO MATCH COLOR OF FINISHED MATERIAL AND 8" EXTENSIONS AS NECESSARY.
F. PROVIDE DEWITT PRO 5 WEED CLOTH ALONG SIDES AND BASE OF VALVE BOX INSTALLATION. TAPE TO ALL INLET AND OUTLET PIPE AND VALVE BOX WITH HEAVY DUTY PLASTIC 3M TAPE.
G. PVC MAINLINE–SEE IRRIGATION LEGEND.
H. SCH 80 – 45 DEGREE FITTING.
I. 8"X8"X16" SOLID CMU BLOCK @ EACH CORNER.
J. 4" DEPTH, 3/8" DIAMETER WASHED PEA GRAVEL.
K. 24" WIRE EXPANSION COIL, EXTEND WIRE 12" ABOVE VALVE BOX FOR SERVICE.
L. SCHEDULE 80 PVC CLOSE NIPPLE.
M. FLANGE (3" AND ABOVE) AND UNION (BELOW 3" PIPE SIZE)
N. LATERAL LINE.

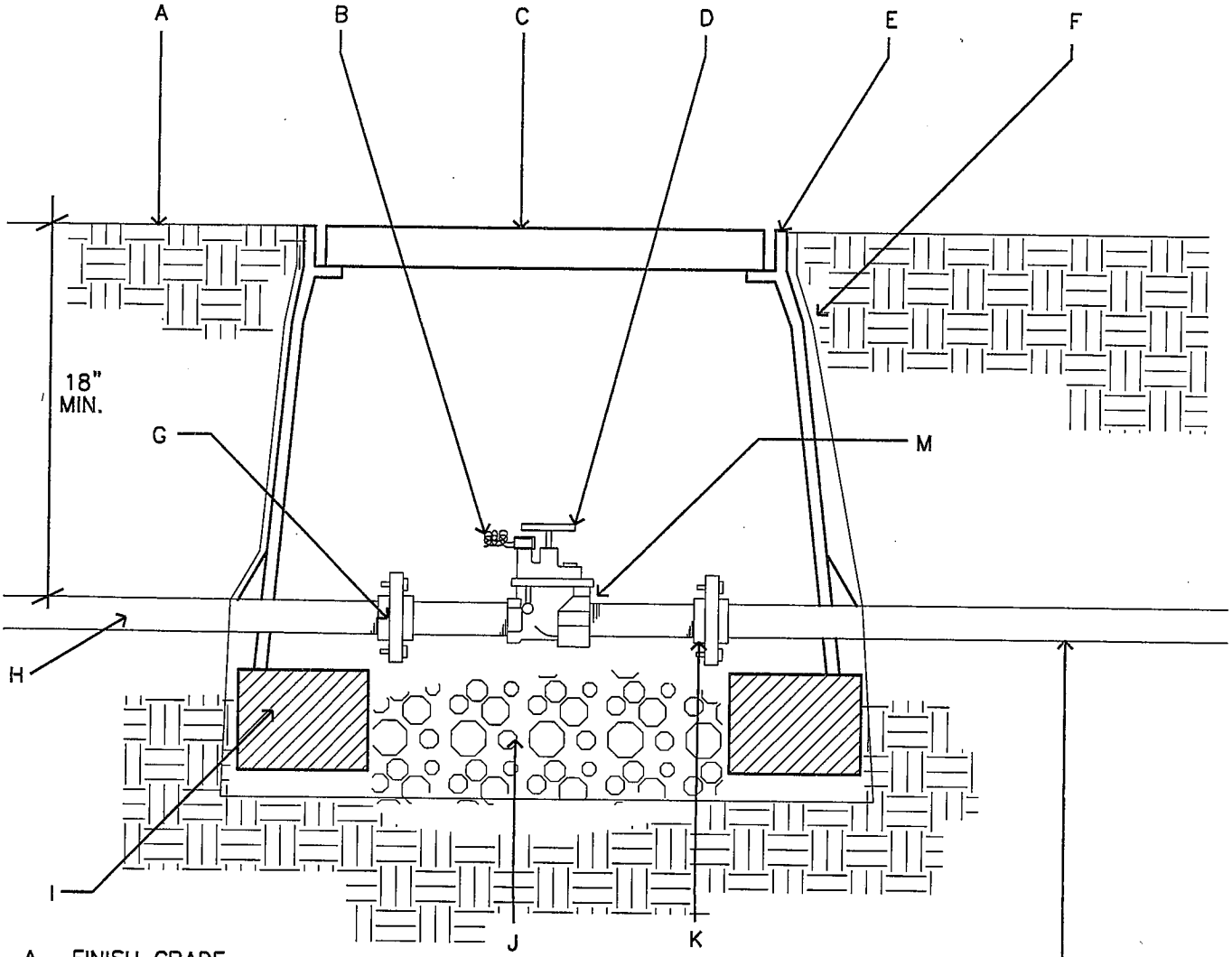
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

IRRIGATION CONTROL VALVE

NTS



A. FINISH GRADE.
B. WIRE EXPANSION COIL. EXTEND WIRE 12" ABOVE VALVE BOX FOR SERVICE.
C. CARSON BOLT DOWN (ABS) FLAT COVER BOX, COLOR TO MATCH FINISH MATERIAL.
D. ELECTRIC MASTER VALVE.
E. CARSON PRODUCTS INC, 1419-18 (ABS) VALVE BOX WITH 8" EXTENSIONS AS NECESSARY.
F. DEWITT PRO 5 WEED CLOTH ALONG SIDES AND BASE OF VALVE BOX INSTALLATION. TAPE TO ALL INLET AND OUTLET PIPE AND VALVE BOX WITH HEAVY DUTY PLASTIC 3M TAPE.
G. FLANGE (3" AND ABOVE) AND UNION (BELOW 3" PIPE SIZE).
H. WATER FLOW MAINLINE.
I. 8"X8"X16" SOLID CMU BLOCK @ EACH CORNER.
J. 4" DEPTH, 3/8" DIAMETER WASHED PEA GRAVEL.
K. PVC MAINLINE FLANGES.
L. MAINLINE.
M. THREADED FITTING SCH. 40 PVC.

NOTE: PVC PIPE TO BE CLEAR OF VALVE BOX AND SOLID CMU BLOCK.

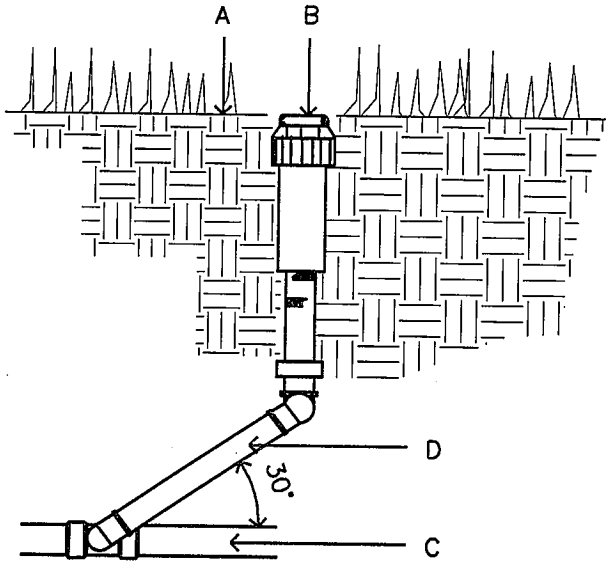
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

IRRIGATION MASTER VALVE

NTS



A. FINISH GRADE.
B. SPRINKLER HEAD (SEE PLAN).
C. LATERAL LINE (SEE PLAN).
D. LASCO PRE-ASSEMBELED SWING JOINT.

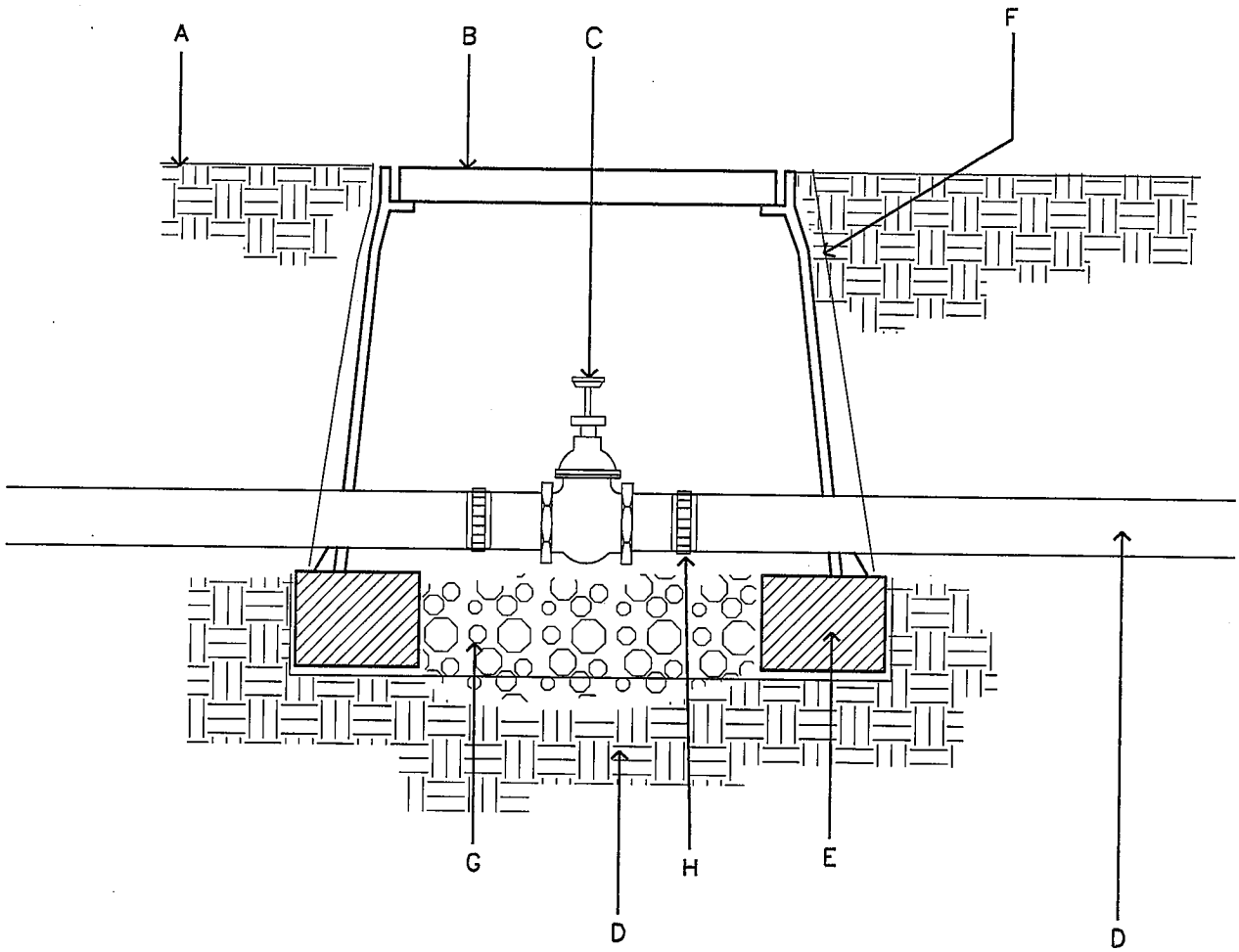
THIS DETAIL SHALL BE USED FOR POP-UP SHRUB SPRAY, POP-UP LAWN SPRAY, GEAR DRIVEN AND ROTARY SPRINKLER HEADS.
TOP OF SPRINKLER HEAD SHALL BE SET FLUSH WITH FINISH GRADE.
SWING JOINT INSTALLATION TO COMPLY WITH MANUFACTURER'S RECOMMENDATION.

CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

IRRIGATION SPRINKLER HEAD NTS



A. FINISH GRADE.
B. CARSON PRODUCTS INC, 1419-18(ABS) VALVE BOX WITH BOLT DOWN FLAT LID COVER TO MATCH COLOR OF FINISH MATERIAL AND 8" EXTENSIONS AS NECESSARY.
C. BRASS ISOLATION VALVE- SEE IRRIGATION LEGEND.
D. IRRIGATION MAINLINE.
E. 8"X 8"X16" SOLID CMU SOLID BLOCK @ EACH CORNER.
F. PROVIDE DEWITT PRO 5 WEED CLOTH ALONG SIDES AND BASE OF VALVE BOX INSTALLATION. TAPE TO ALL INLET AND OUTLET PIPE AND VALVE BOX WITH HEAVY DUTY PLASTIC 3M TAPE.
G. 4" DEPTH, 3/8" WASHED PEA GRAVEL.
H. FLANGE (3" AND ABOVE) AND UNION (BELOW 3" PIPE SIZE)

NOTE: PVC PIPE TO BE CLEAR OF VALVE BOX AND SOLID CMU BLOCK.

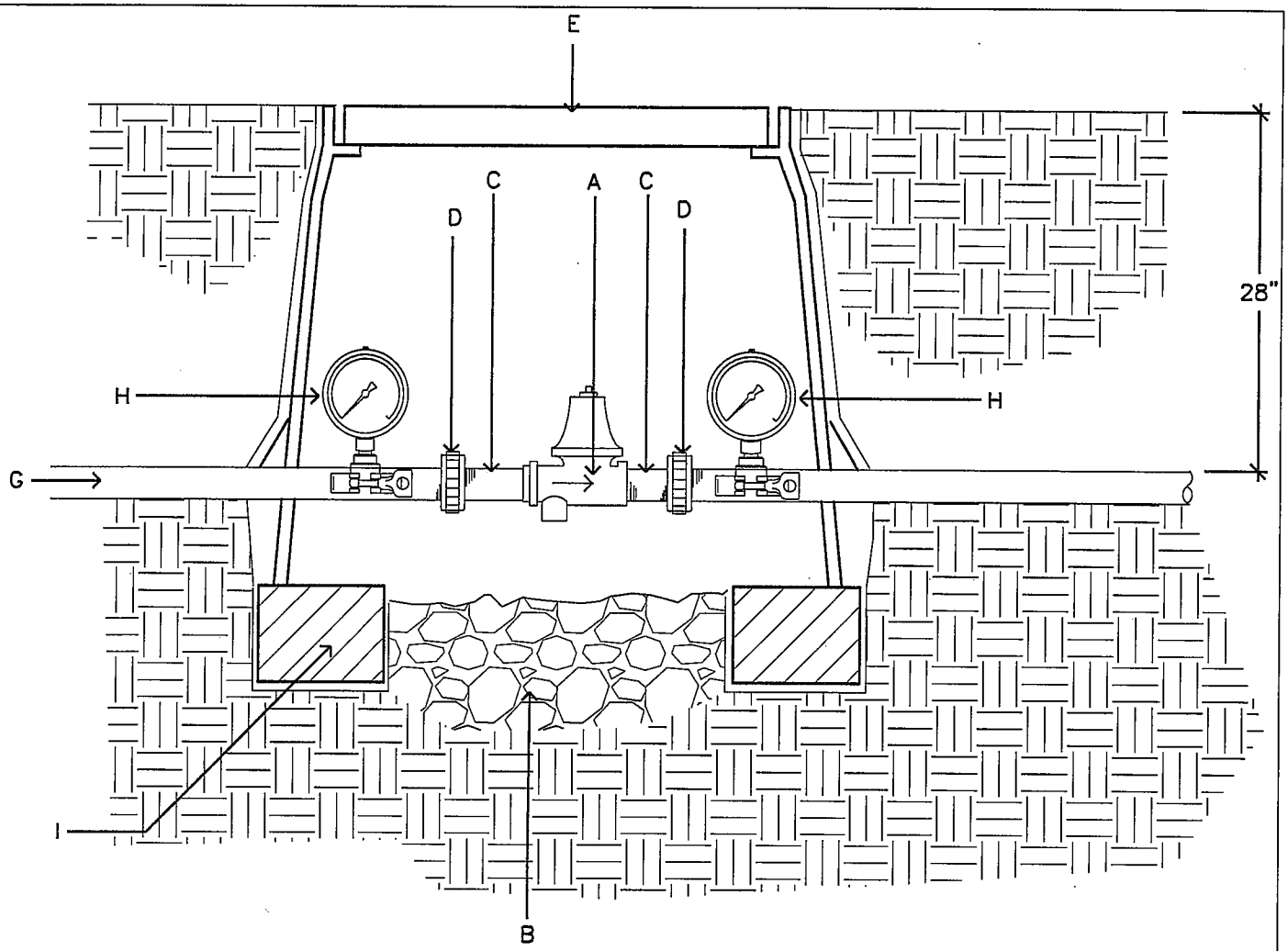
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

ISOLATION VALVE

NTS



CONSTRUCTION NOTES:

A. PRESSURE REGULATOR, SEE IRRIGATION LEGEND
B. 2 CU. FT. 1" DIAMETER WASHED PEA GRAVEL.
C. SCH. 80 PVC NIPPLE
D. FLANGE (3" AND ABOVE) AND UNION (BELOW 3" PIPE SIZE)
E. CARSON PRODUCTS INC. 1419 OR 1730 PB-18 BODY (ABS) VALVE BOX WITH 1419 OR 1730 BOLT DOWN COVER (ABS) TO MATCH FINISHED MATERIAL AND (1) 8 INCH EXTENSION.
F. DEWITT PRO 5 WEED CLOTH ALONG SIDES AND BASE OF VALVE BOX INSTALLATION. TAPE TO ALL INLET AND OUTLET PIPE AND VALVE BOX WITH HEAVY DUTY PLASTIC 3M TAPE.
G. MAINLINE
H. HORIZONTAL HYGIENIC PRESSURE GAUGE
NOTE: PROVIDE 1 PRESSURE GAUGE ON MAIN LINE UPSTREAM AND DOWNSTREAM OF PRESSURE REDUCING VALVE. SET IT IN HORIZONTAL TO BE READABLE.
I. 8"X8"X16" SOLID CMU BLOCK @ EACH CORNER.

NOTE: PVC PIPE TO BE CLEAR OF VALVE BOX AND SOLID CMU BLOCK.

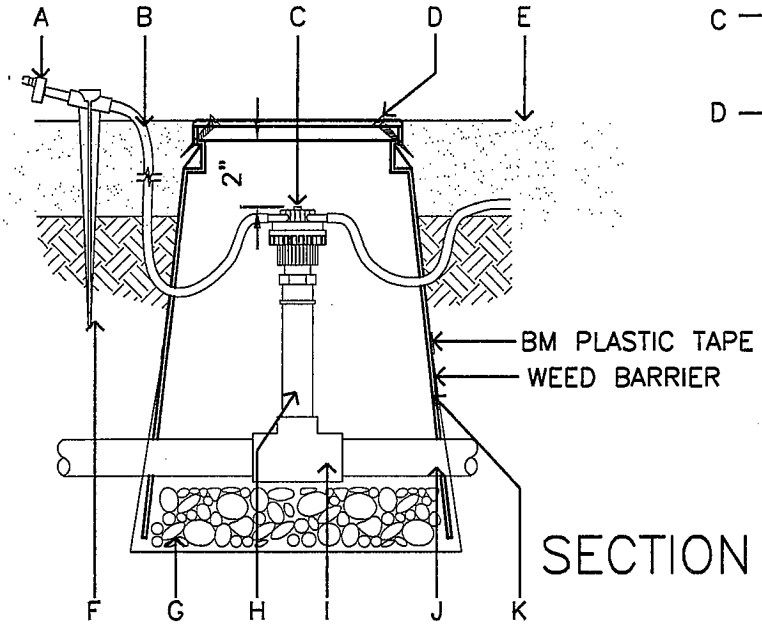
CITY OF EL PASO

PARKS & RECREATION

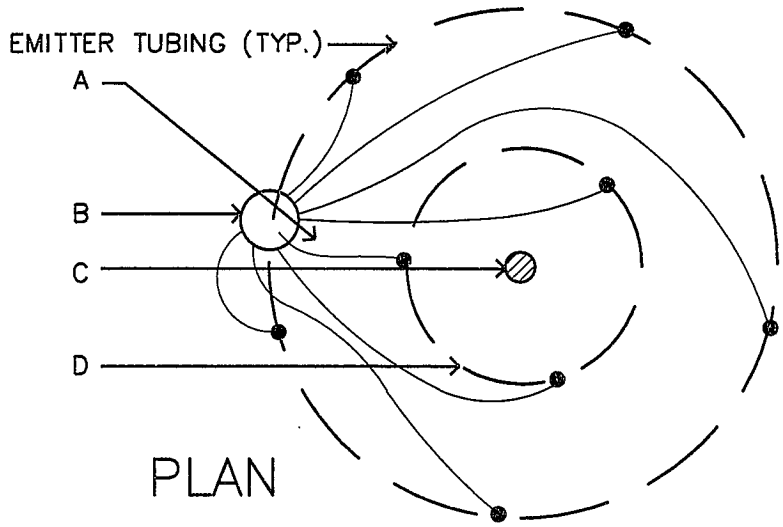
DETAIL NAME

MAINLINE PRESSURE REGULATOR VALVE

NTS



SECTION



PLAN

INSTALL (8) EMITTERS PER TREE, SPACE EVENLY AROUND ROOTBALL, IN OFFSET TRIANGULAR PATTERN FOR TREES, SEE IRRIGATION LEGEND FOR OUTLET EMITTER SIZE.

A. EMITTER TUBING.
B. MULTI OUTLET EMITTER DEVICE, INSTAL 5' FROM TREE TRUNK ON WEST SIDE.
C. TREE TRUNK.
D. TREE ROOTBALL.

A. SINGLE-OUTLET EMITTER: SEE IRRIGATION LEGEND (BARB ONLY).
B. 1/4-INCH TUBING: POLYETHYLENE DISTRIBUTION TUBING.
C. 8-OUTLET DISTRIBUTION MANIFOLD: SEE IRRIGATION LEGEND
D. INSTALL 2-#8, 2" LONG SELF TAPING BRASS SCREWS.
E. FINISH GRADE.
F. 1/4-INCH TUBING STAKE: RAIN BIRD TS-025
G. 3" MIN. DEPTH OF 3/8" WASHED PEA GRAVEL.
H. SCH. 80 THREADED NIPPLE, LENGTH AS NEEDED.
I. TEE OR ELL TO PVC OR POLYETHYLENE PIPE SEE PLAN.
J. PVC OR POLEYETHYLENE LATERAL PIPE, SEE PLAN.
K. CARSON 9" ROUND SUBTERRANEAN EMITTER BOX, COVER TO MATCH COLOR OF FINISHED MATERIAL (GREEN IN TURF AND TAN IN ROCK MULCH AREAS).

CONSTRUCTION NOTES:
1. ENSURE SINGLE OUTLET EMITTER IS ON TOP OF THE PLANT'S ROOTBALL.
2. LOCATE SINGLE OUTLET EMITTERS AROUND TREES AS PER PLAN DIAGRAM ABOVE.
3. LOCATE SINGLE OUTLET EMITTERS FOR 1 GALLON & 5 GALLON ON OPPOSITE SIDES OF ROOTBALL.
4. WEED BARRIER TO BE INSTALLED UNDER WASHED PEA GRAVEL AND WRAPPED AROUND EMITTER BOX THEN TAPE WITH ALL PENETRATIONS SEALED. USE 3M BRAND HEAVY DUTY PLASTIC TAPE.

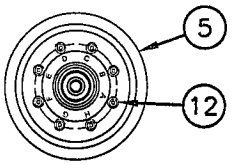
CITY OF EL PASO

PARKS & RECREATION

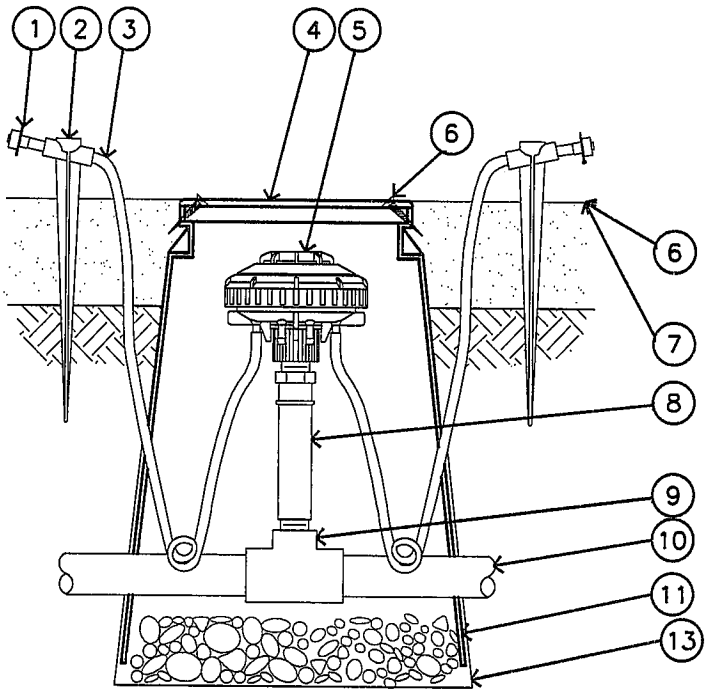
DETAIL NAME

MULTI -8- OUTLET EMITTER FOR TREE

NTS



INSIDE VIEW



(1) DIFFUSER BUG CAP: RAIN BIRD DBC-025 (1 OF 2 SHOWN, 8 POSSIBLE).
(2) UNIVERSAL ¼" TUBING STAKE: RAIN BIRD TS-025 (1 OF 2 SHOWN, 8 POSSIBLE).
(3) 1/4" DISTRIBUTION TUBING: RAIN BIRD XQ TUBING (LENGTH AS REQUIRED) (1 OF 2 SHOWN, 8 POSSIBLE).
(4) SUBTERRANEAN EMITTER BOX: CARSON 910 SERI ES(GREEN IN TURF AREAS AND TAN IN ROCK LANDSCAPE AREAS).
(5) MULTI-8-OUTLET EMISSION DEVICE: RAIN BIRD XERI-BIRD XBD-80.
(6) INSTALL 2 #8, 2" LONG SELF TAPING BRASS SCREWS.
(7) FINISH GRADE.
(8) PVC SCH 80 THREADED NIPPLE LENGTH AS NEEDED.
(9) PVC SCH 40 TEE OR ELL.
(10) PVC LATERAL PIPE.
(11) 3" MINIMUM DEPTH OF 3/4" WASHED PEA GRAVEL.
(12) SINGLE-OUTLET BARB INLET X BARB OUTLET EMITTER: RAIN BIRD XERI-BUG EMITTER.
(13) WEED BARRIER TAPED TO EMITTER BOX AND PIPE PENETRATION. TAPE TO BE 3M BRAND HEAVY DUTY PLASTIC TAPE.

NOTES:
1. COIL ADDITIONAL 9" OF TUBING IN EMITTER BOX TO FACILITATE MAINTENANCE.
2. RAIN BIRD XERI-BUG BARB X BARB EMITTERS ARE AVAILABLE IN THE FOLLOWING MODELS:
XB-05PC 0.5 GPH XB-10PC 1.0 GPH XB-20PC 2.0 GPH

CITY OF EL PASO

PARKS & RECREATION

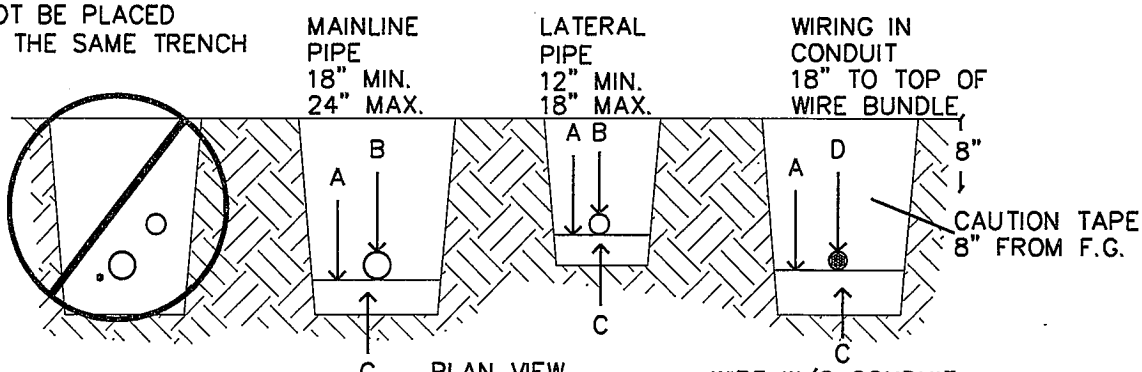
DETAIL NAME

MULTI -8- OUTLET EMITTER

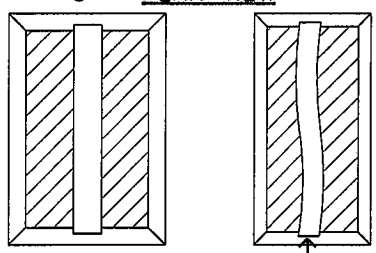
NTS

MAINLINE, LATERAL, AND WIRING SHALL NOT BE PLACED IN THE SAME TRENCH

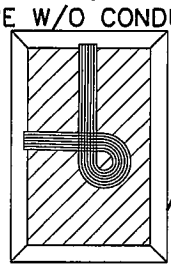
SECTION VIEW



PLAN VIEW



WIRE W/O CONDUIT



SET WIRE BUNDLE AT 5' FROM MAINLINE ALONG THE NORTH AND WEST SIDE OF MAIN OR AS AGREED TOO WITH PARKS STAFF.

ALL SOLVENT WELD PLASTIC PIPING TO BE SNAKED IN TRENCH AS SHOWN FOR LATERAL LINES.

TIE A 24-INCH LOOP IN ALL WIRING AT CHANGES OF DIRECTION OF 30° OR GREATER AND EVERY 200 FEET.

NOTES:
A. BOTTOM OF EXCAVATED TRENCH WHERE NONE ROCKY SOILS ARE EXPOSED (ENCOUNTERED).
B. IRRIGATION SYSTEM PIPING.
C. MINIMUM 4" DEEP BEDDING SANDY SOILS MATERIAL WHERE ROCKY SOILS ARE EXPOSED.
D. IRRIGATION SYSTEM VALVE WIRING.
E. BACKFILL SOILS MATERIAL MAY BE NATIVE SOILS IF IT IS FREE OF CALICHE OR STONES LARGER THANK 1" IN SIZE AND ORGANIC MATTER OR WASTE DEBRIS. SOILS COMPACTION IN TURF AREAS TO BE 80% TO 85% DENSITY BY ASTM D-1557 STANDARD AND AT 95% DENSITY UNDER PAVED OR HARDSCAPE SURFACES.

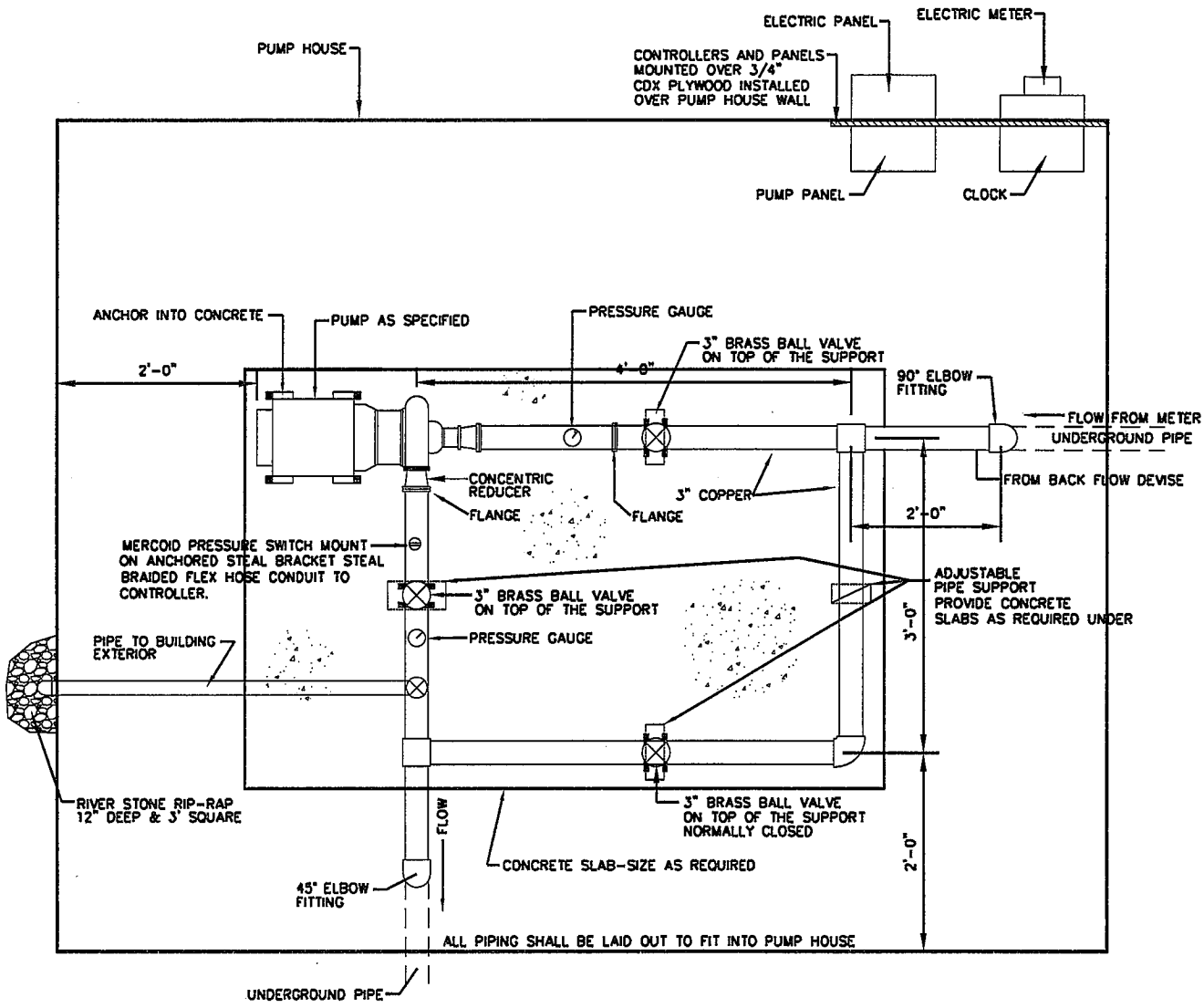
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

PIPE / WIRE IN TRENCH

NTS



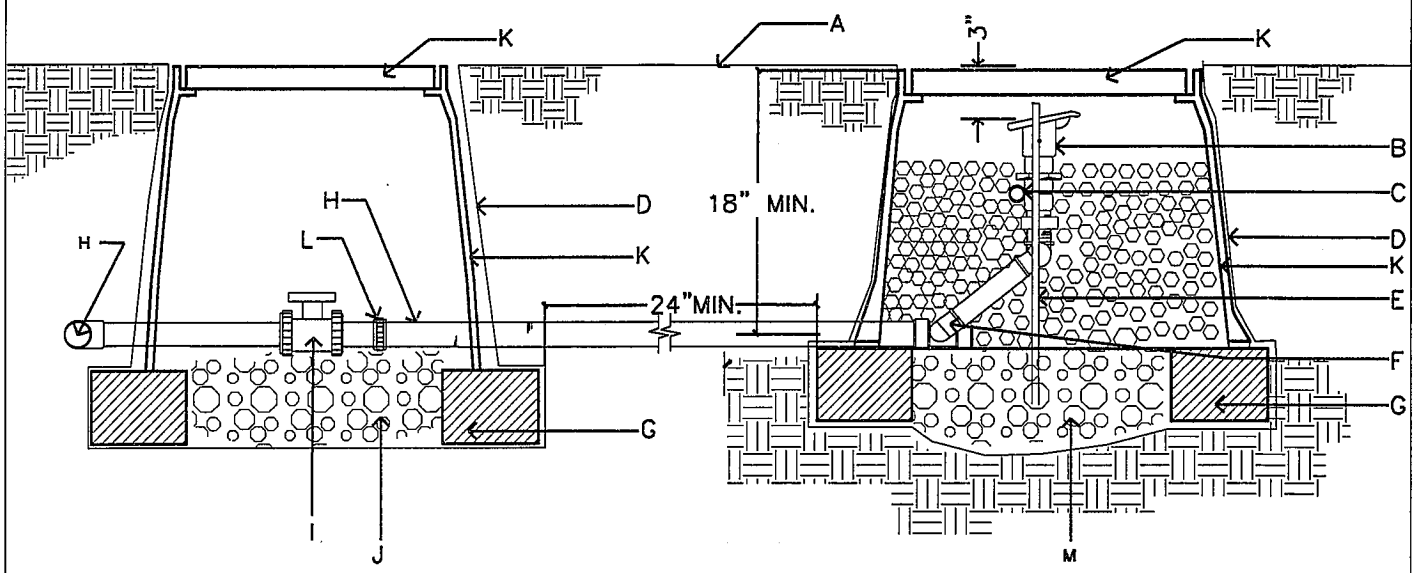
NOTE: NEED RUBBER ISOLATOR PADS UNDER PUMP AND AT ALL PIPE SUPPORTS

CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

PUMPS
PLAN VIEW DETAIL



A. FINISH GRADE.
B. 1" BUCKNER QUICK COUPLER VALVE, DOUBLE LUG WITH LASCO SNAP-LOK W/MALE BRASS STABILIZER ELBOW.
C. MIN. 12" SECTION 1" DIA. PVC, SECTION SHOULD EXTEND BEYOND BOTH REBAR SECTION, STABILIZE IN GRAVEL.
D. PROVIDE DEWITT PRO 5 WEED CLOTH ALONG SIDES AND BASE OF VALVE BOX. TAPE TO ALL INLET AND OUTLET PIPE AND VALVE BOX WITH HEAVY DUTY 3M PLASTIC TAPE.
E. 1/2" OR 3/8" REBAR, MIN. 30" LENGTH, ONE ON EITHER SIDE OF QUICK COUPLER FOR STABILITY.
F. LASCO SWING JOINT (PRE-ASSEMBLED).
G. 8" X 8" X 16" SOLID CMU BLOCK
H. IRRIGATION MAINLINE
I. ISOLATION BALL VALVE, SEE IRRIGATION LEGEND.
J. 6" DEPTH OF 3/8" WASHED PEA GRAVEL
K. CARSON PRODUCTS INC. 1419-18 BODY (ABS) VALVE BOX W/BOLT DOWN COVER (COVER COLOR TO MATCH FINISH MATERIAL AND EXTENSION AS NECESSARY.
L. PROVIDE PVC UNION FOR PIPE SIZES LESS THAN THREE INCHES IN DIAMETER OR PROVIDE. FLANGES FOR PIPE SIZES THREE INCHES IN DIAMETER OR LARGER.
M. 3/8" WASHED PEA GRAVEL FILLED TO QUICK COUPLER FOR STABILITY.

NOTE: INSTALL AN 8" X 8" X 16" SOLID CMU BLOCK AT EACH CORNER OF THE VALVE BOX. INSTALL 3/8" PEA GRAVEL BELOW THE 1419-18 VALVE BOX WITH BOLT DOWN COVER. EXTEND PEA GRAVEL UP TO COLLAR OF QUICK COUPLER VALVE. INSTALL A TEE, FLANGE & BALL VALVE OFF OF THE MAIN LINE IMMEDIATELY UPSTREAM OF THE QUICK COUPLER VALVE.

CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

QUICK COUPLER VALVE

NTS

CITY OF EL PASO

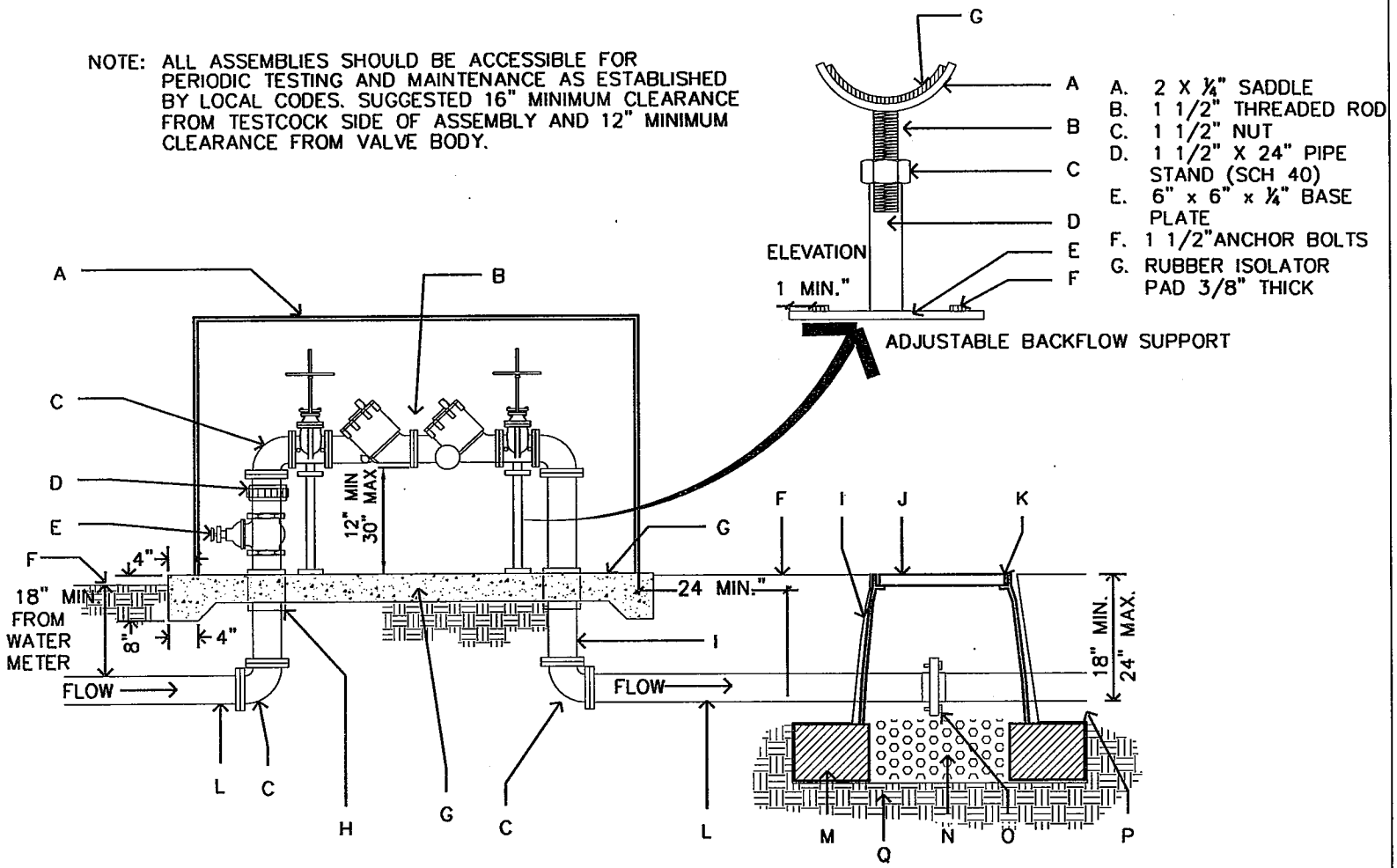
PARKS & RECREATION

DETAIL NAME

REDUCED PRESSURE BACKFLOW PREVENTER

NTS

NOTE: ALL ASSEMBLIES SHOULD BE ACCESSIBLE FOR PERIODIC TESTING AND MAINTENANCE AS ESTABLISHED BY LOCAL CODES. SUGGESTED 16" MINIMUM CLEARANCE FROM TESTCOCK SIDE OF ASSEMBLY AND 12" MINIMUM CLEARANCE FROM VALVE BODY.

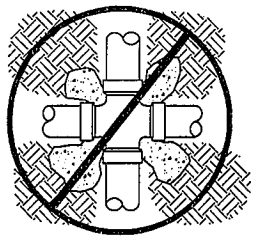


A. 2 X ¼" SADDLE
B. 1 1/2" THREADED ROD
C. 1 1/2" NUT
D. 1 1/2" X 24" PIPE STAND (SCH 40)
E. 6" x 6" x ¼" BASE PLATE
F. 1 1/2"ANCHOR BOLTS
G. RUBBER ISOLATOR PAD 3/8" THICK

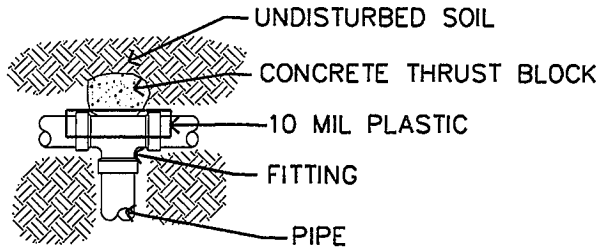
A. STAINLESS STEEL INSULATED HOT BOX ENCLOSURE R-VALVE R-25 (SEE IRRIGATION LEGEND) ASSE 1060-CLASS i
B. REDUCED PRESSURE ASSEMBLY BACKFLOW PREVENTER (SEE PARTS LIST).
C. COPPER FITTINGS.
D. COPPER UNION, 4" ABOVE GRADE, MIN.
E. BRASS BALL VALVE.
F. FINISH GRADE.
G. 4000 PSI CONCRETE PAD, 4" DEPTH, SLOPED 1% TO DRAIN.
H. PIPE SHALL BE SLEEVED THROUGH CONC. PAD WITH SCH 40 PVC SEAL PIPE.
I. PROVIDE PRO 5 WEED CLOTH ALONG SIDES AND BASE OF VALVE BOX, TAPE TO ALL INLET & OUTLET PIPE. WITH HEAVY DUTY PLASTIC TAPE MANUFACTURED BY 3M.
J. 1419 BOLT DOWN FLAT LID COVER (ABS).
K. CARSON PRODUCTS INC, 1419-18 BODY (ABS) VALVE BOX (OR APPROVED EQUAL), EXTENSION AS NEEDED.
L. TYPE K COPPER PIPING.
M. 8" X 8" X 16" SOLID CMU SOLID BLOCK.
N. 3/8" WASHED PEA GRAVEL, 4" DEPTH.
O. FLANGE.
P. PVC MAIN LINE.
Q. UNDISTURBED OR COMPACTED SOILS.

INSTALL AN 8" X 8" X 16" SOLID CMU BLOCK AT EACH CORNER OF THE VALVE BOX.
INSULATE (R-25 MIN.) FROM FREEZING MUST COMPLY WITH ASSE 1060-CLASS I.
PROVIDE 2" CLEARANCE BETWEEN VALVE BOXES AND PVC OR COPPER PIPING.

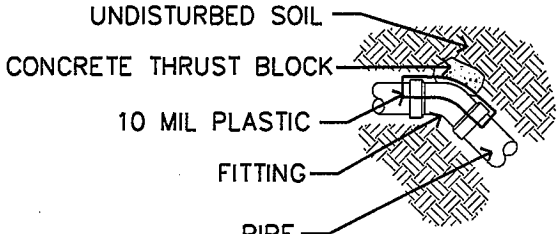
ELL



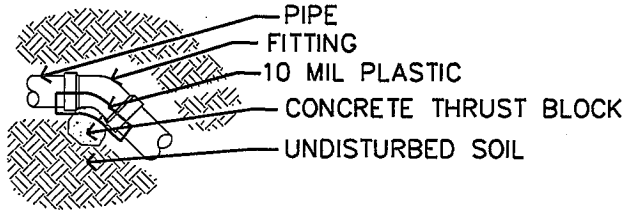
CROSS



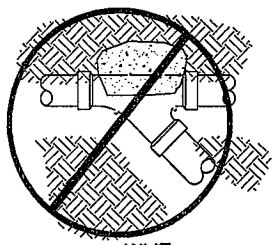
TEE



45° ELL



45° ELL



WYE

NOTES:

1. SUPPLY LINES 6 INCHES IN DIAMETER AND LARGER SHALL RECEIVE CONCRETE THRUST BLOCKS.
2. SEE CIVIL SPECIFICATIONS FOR AMOUNT OF CONCRETE TO BE USED FOR THRUST BLOCK.
3. ALL IRRIGATION MAINLINES SHALL UTILIZE SWEEP FITTINGS. NO 90-DEGREE MAINLINE BENDS WILL BE ALLOWED.
4. ANY CHANGES IN DIRECTION OF MAIN LINE TO BE DONE WITH DIRECTION FITTINGS.
5. THRUST BLOCK MUST BUILT UP TO UNDISTURBED GROUND.

PIPE SIZE	MAIN LINE	
	TEE	45° BEND
6"	4 SQ. FEET	3 SQ. FEET
8"	6 SQ. FEET	3 SQ. FEET

CITY OF EL PASO

PARKS & RECREATION

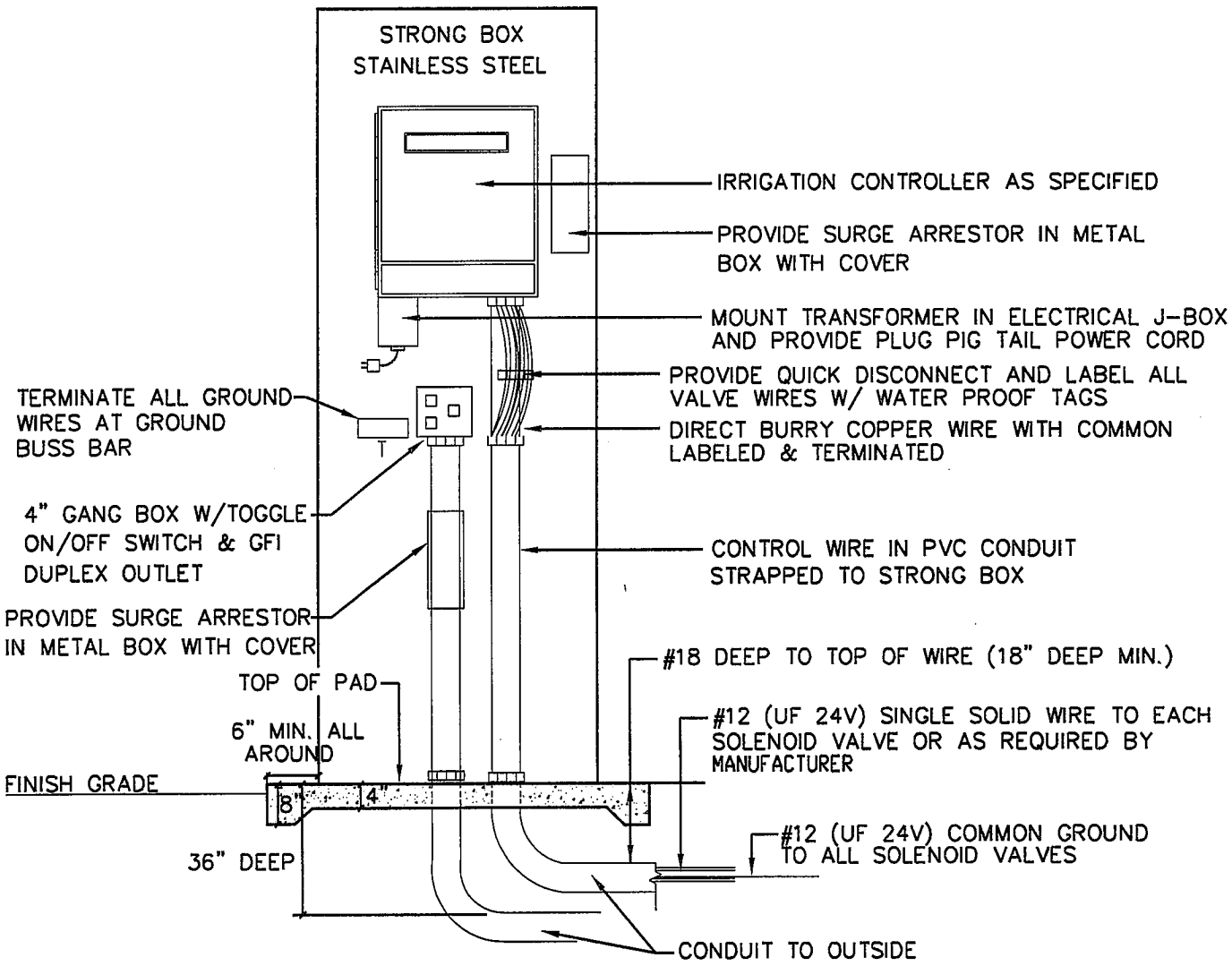
DETAIL NAME

THRUST BLOCKING DETAIL

NTS

IRRIGATION
ELECTRICAL DETAILS

CITY OF EL PASO PARKS & RECREATION



NOTES: 1. GROUND CABINET WITH #10 GAUGE OR HEAVIER STRANDED COPPER WIRE TO GROUNDING ROD AS PER MANUFACTURER'S SPECIFICATIONS.
2. PEDESTAL ENCLOSURE TO BE SIZED TO HOUSE EQUIPMENT PROPERLY.

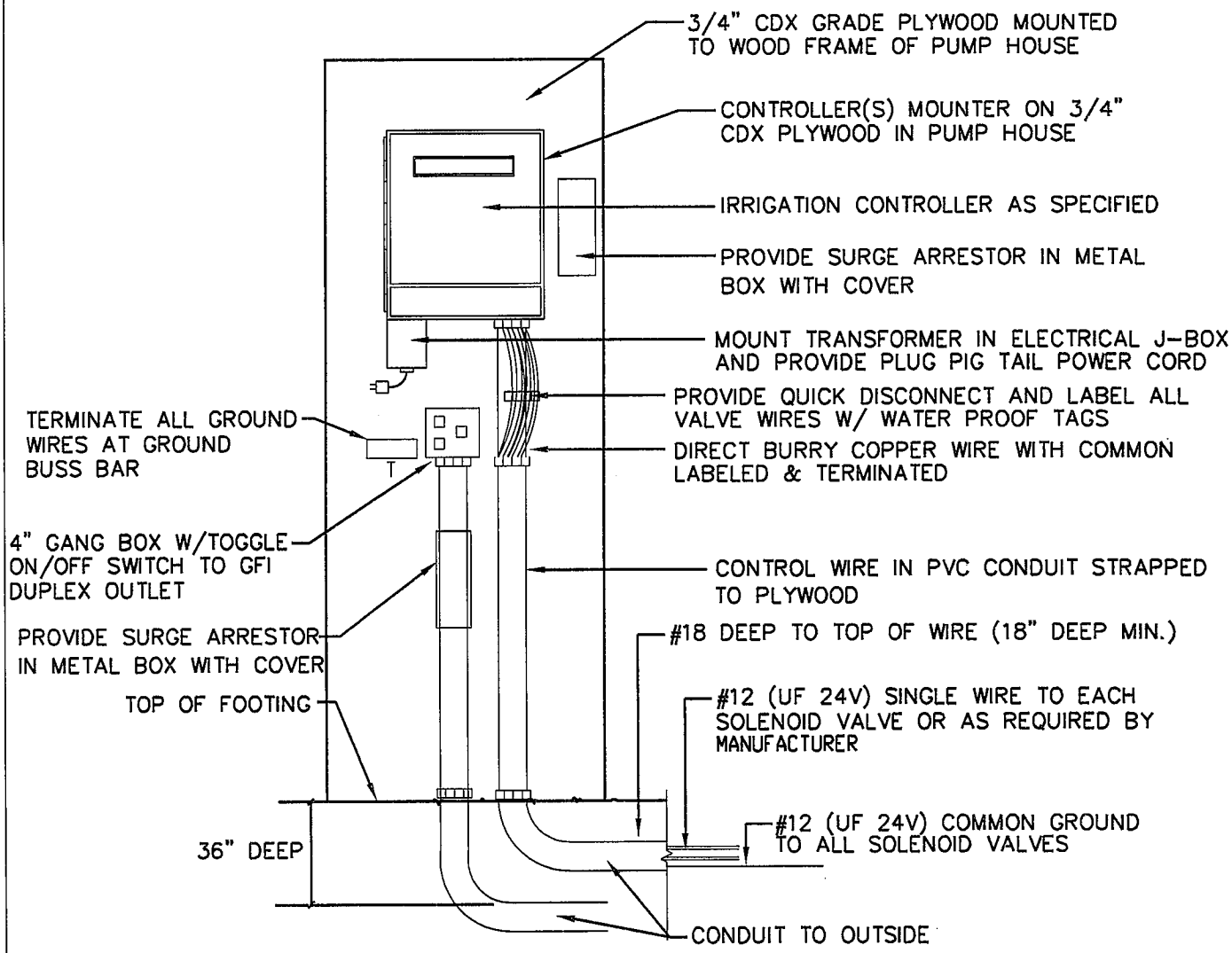
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

CONTROLLER PEDESTAL ENCLOSURE DETAIL

NTS



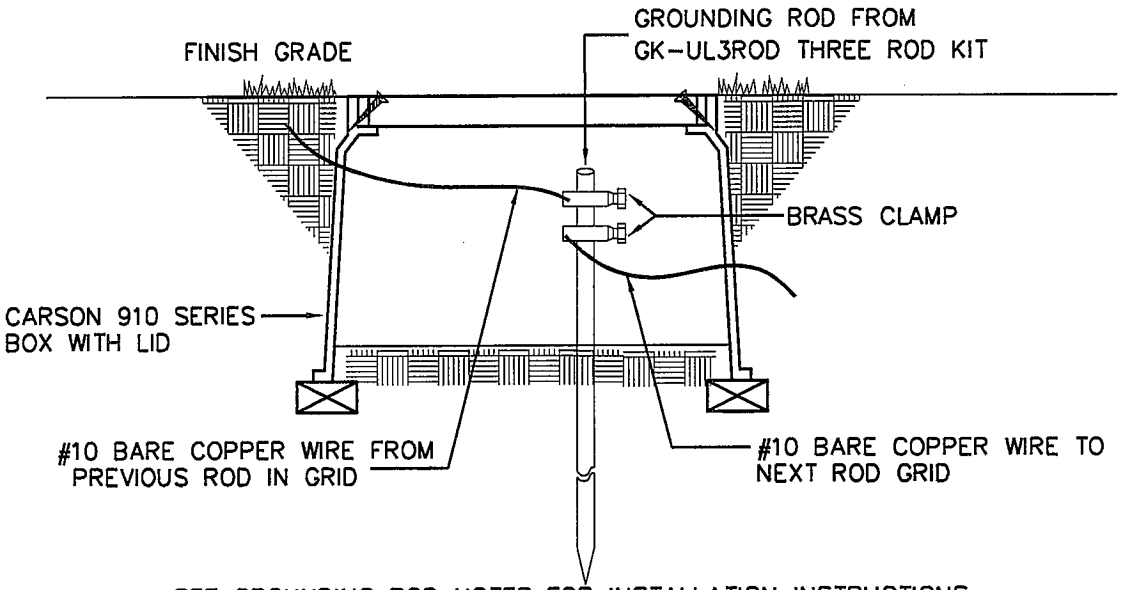
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

CONTROLLER WALL MOUNT DETAIL INSIDE PUMP HOUSE

NTS

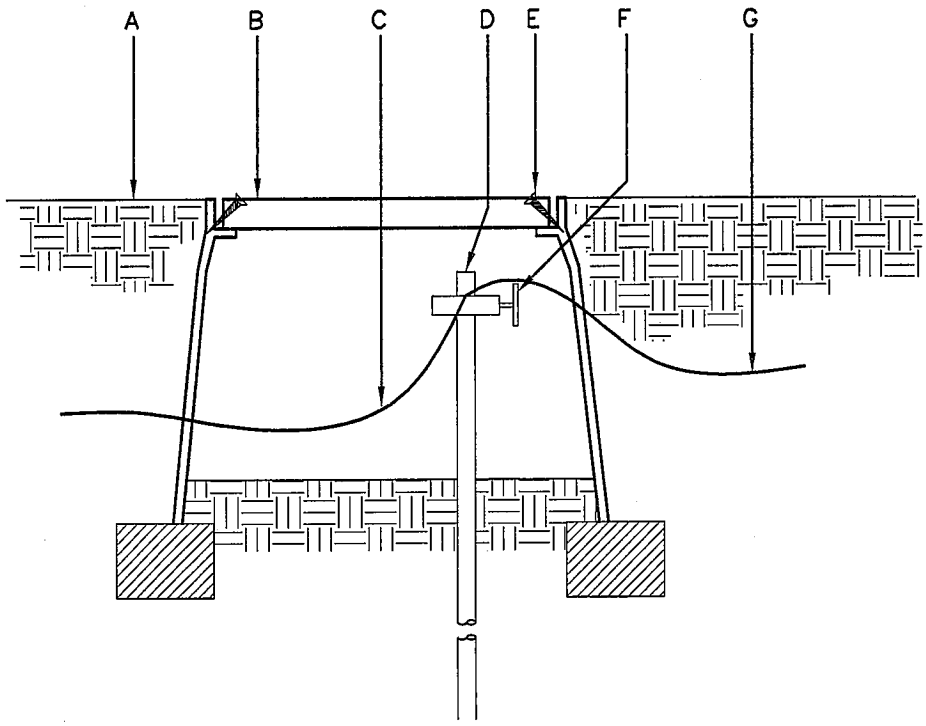


GROUNDING ROD NOTES:

GROUNDING RODS SERVE AS ELECTRODES FOR DEVICES TO DISSIPATE THE SURGE INTO THE EARTH. CAREFULLY READ THE FOLLOWING INSTALLATION INSTRUCTIONS:

1. ALWAYS USE A 5/8" X 8' COPPER CLAD ROD.
2. RUN A #10 OF LARGER BARE COPPER WIRE FROM THE DEVICE TO THE ROD.
3. KEEP THE GROUND WIRES AS SHORT AND STRAIGHT AS POSSIBLE FROM THE DEVICE TO THE FIRST ROD.
4. CLAMP ALL WIRES TO THE GROUNDING ROD. DO NOT SOLDER OR TAPE THEM TO THE ROD.
5. TO INSTALL GROUNDING ROD, USE GK-TOOLS ROD DRIVING SLEEVE.
6. SPACE THREE RODS IN A TRIANGULAR GRID AT LEAST 8' APART FROM THE OTHERS IN THE GRID. CONNECT ALL THREE RODS WITH A SOLID # 10 COPPER WIRE.
7. WHEN TESTED WITH THE PROPER EQUIPMENT, GRIDS SHOULD HAVE AN EARTH RESISTANCE NO GREATER THAN 10 OHMS.
8. WHENEVER MORE THEN ONE WIRE IS ATTACHED TO A GROUNDING ROD ALWAYS USE A SEPARATE CLAMP FOR EACH WIRE. TRYING TO INSTALL MORE THAN ONE WIRE PER CLAMP COULD CAUSE A POOR CONNECTION RESULTING IN HIGH RESISTANCE LEVELS.
9. GROUNDING RODS SERVE AS ELECTRODES FOR THE SURGE DEVICES TO DISSIPATE THE SURGE INTO THE EARTH REMEMBER THESE TIPS WHEN INSTALLING THEM.

CITY OF EL PASO PARKS & RECREATION	DETAIL NAME GROUNDING WIRES IN GRID DETAIL INITIAL RERMINAL NTS



A. FINISH GRADE.
B. CARSON 910 SERIES VALVE BOX WITH LID AND SCREWS, COLOR TO MATCH MULCH.
C. No. 10 BARE COPPER WIRE FROM PREVIOUS ROD IN GRID.
D. GROUNDING ROD FROM GK-UL3ROD THREE ROD KIT.
E. INSTALL SELF TAPING #8, 2" LONG BRASS SCREWS.
F. BRASS CLAMP.
G. No. 10 BARE COPPER WIRE CONTINUING TO NEXT ROD IN GRID.

NOTE: SEE GROUNDING ROD NOTES FOR INSTALLATION INSTRUCTIONS.

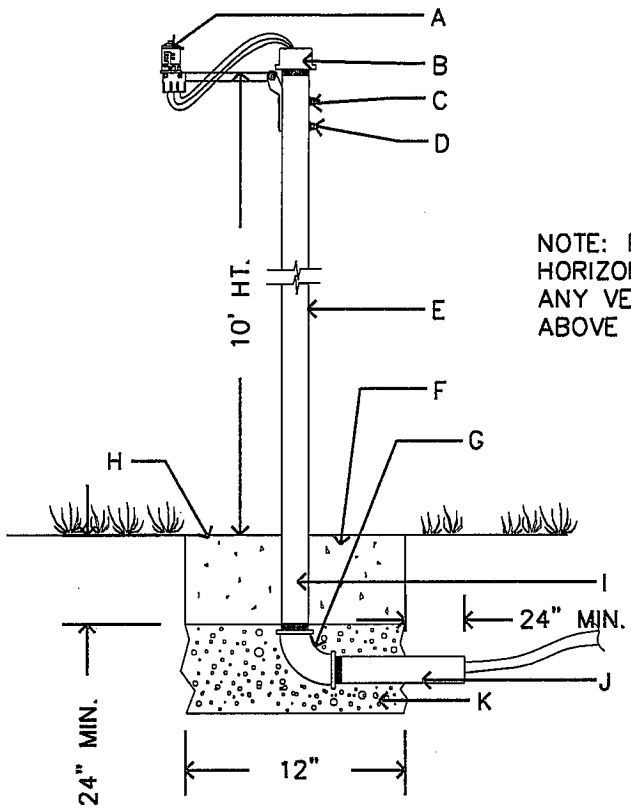
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

GROUNDING WIRES INTERMEDIATE

NTS



NOTE: PROVIDE A 7 FT. HORIZONTAL CLEARANCE FROM ANY VERTICAL STRUCTURES ABOVE 12 INCHES.

A. RAIN BIRD RSD-BEx RAIN SENSOR. SET TO 1/8"
B. $2\frac{1}{2}$" PIPE CAP WITH HOLE FOR WIRES AND SEAL WITH EXTERIOR GRADE SILICONE SEALANT.
C. DRILL TWO 3/16" HOLES IN PIPE FOR SENSOR BRACKET.
D. (2) NO. 8-32 MACHINE SCREWS WITH WASHER, LOCK WASHER AND NUT.
E. 2 1/2"" SCH 40 GALVANIZED PIPE-10 FT. HT. A.G.
F. 12"X12" CONCRETE BASE, MIN. 24" DEEP.
G. PIPE ELBOW.
H. FINISH GRADE
I. PIPE TO BE SEALED AFTER CABLE IS RUN, USE 4 MIL. PLASTIC AND TAPED NIPPLE AND THE CABLE WITH HIGH GRADE 3M WEATHER PROOF PLASTIC TAPE.
J. NIPPLE. GALVANIZED PIPE IN CONCRETE FOOTING TO BE WRAPPED WITH WEATHER PROOF TAPE TO PROTECT FROM CORROSION.
K. 6" THICK, 3/8" DIAMETER WASHED PEA GRAVEL.

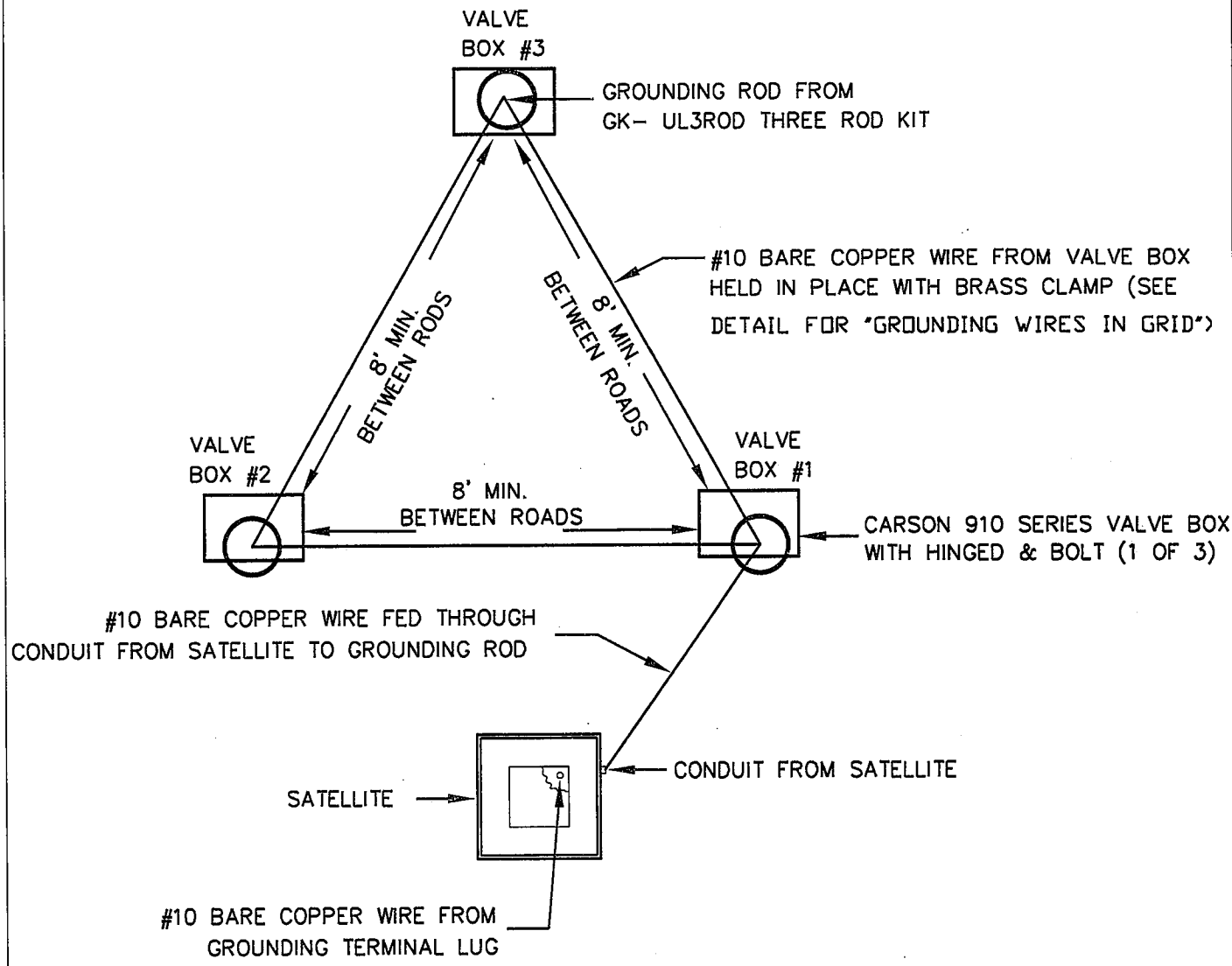
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

RAIN SENSOR

NTS



PLAN VIEW FOR LAYOUT ONLY. SEE GROUNDING ROD NOTES FOR INSTALLATION INSTRUCTIONS.

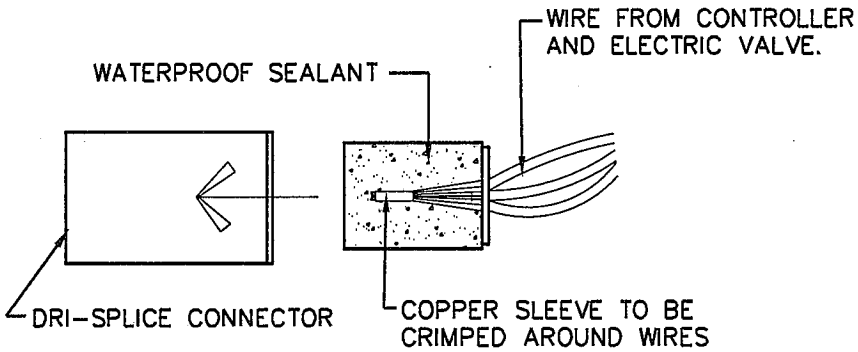
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

TRIANGULAR GROUNDING PLAN VIEW DETAIL

NTS



THREE STEP OPERATION DRI-SPLICE
CONNECTOR ONLY.
FILL WITH SEALANT SUFFICIENT TO
SEAP WHEN ASSEMBLED.

CITY OF EL PASO

PARKS & RECREATION

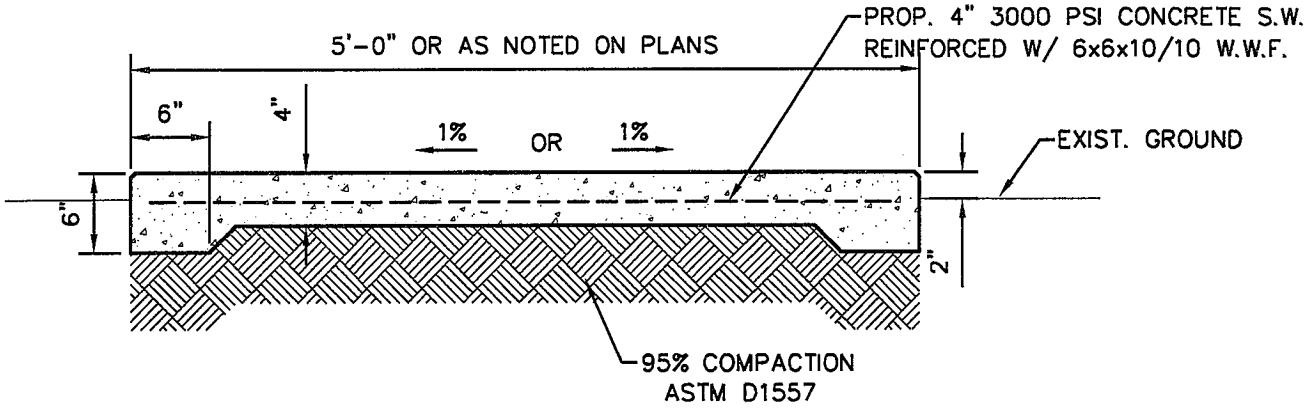
DETAIL NAME

WIRE CONNECTORS

NTS

CONSTRUCTION DETAILS

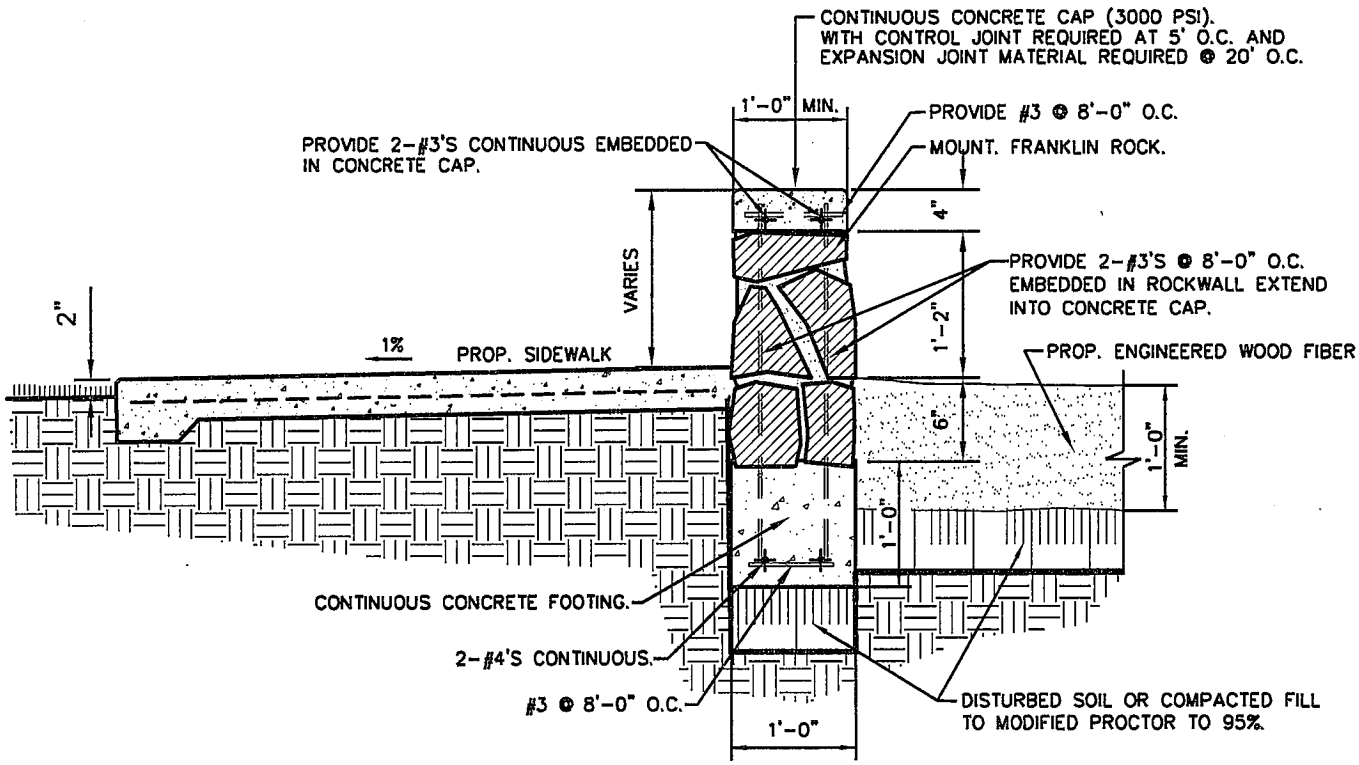
CITY OF EL PASO PARKS & RECREATION



SIDEWALK NOTES:

1. CONCRETE SHALL BE 3000 PSI MINIMUM.
2. CONTROL JOINT REQUIRED AT 5' O.C. FOR SIDEWALKS OR AS SHOWN ON THE PLANS.
3. CONTROL JOINTS SHALL BE 1/8" THICK AND 1" DEEP.
4. EXPANSION JOINT MATERIAL REQUIRED @ 20' O.C. FOR SIDEWALKS OR AS SHOWN ON PLANS.
5. DO NOT CROSS REINFORCEMENT THRU EXPANSION MARTIAL.
6. PROVIDE EXPANSION JOINT MATERIAL WHERE SIDEWALKS MEET, EXISTING SIDEWALKS AND CURBS.

CITY OF EL PASO PARKS & RECREATION	DETAIL NAME SIDEWALK NTS



ROCKWALL NOTES:

1. STONE FOR ROCKWALL SHALL BE AS NEARLY UNIFORM IN SECTION AS IS PRACTICABLE. THE STONE SHALL BE DENSE AND RESISTANT TO AIR AND WATER.
2. MORTAR SHALL BE TYPE "S" 1800 P.S.I. AS PER ASTM C270-73. MORTAR SHALL CONSIST BY VOLUME OF 1 PART PORTLAND CEMENT, 3 1/2 PARTS OF CLEAN, HARD, DURABLE SAND AND 1/4 PART (MORTAR) LIME THOROUGHLY MIXED WITH WATER.
3. ROCKWALL MORTAR JOINTS SHALL NOT EXCEED 3/4" TO 1 1/4".
4. STONE SHALL BE CLEANED, FREE OF DIRT PRIOR TO INSTALLATION.
5. NO RIVER ROCK SHALL BE ALLOWED FOR ROCKWALLS.
6. ROCKWALL TO BE EMBEDDED IN THE CONCRETE FOOTING.
7. JOINT BETWEEN ROCKWALL AND SIDEWALKTO BE SEALED.

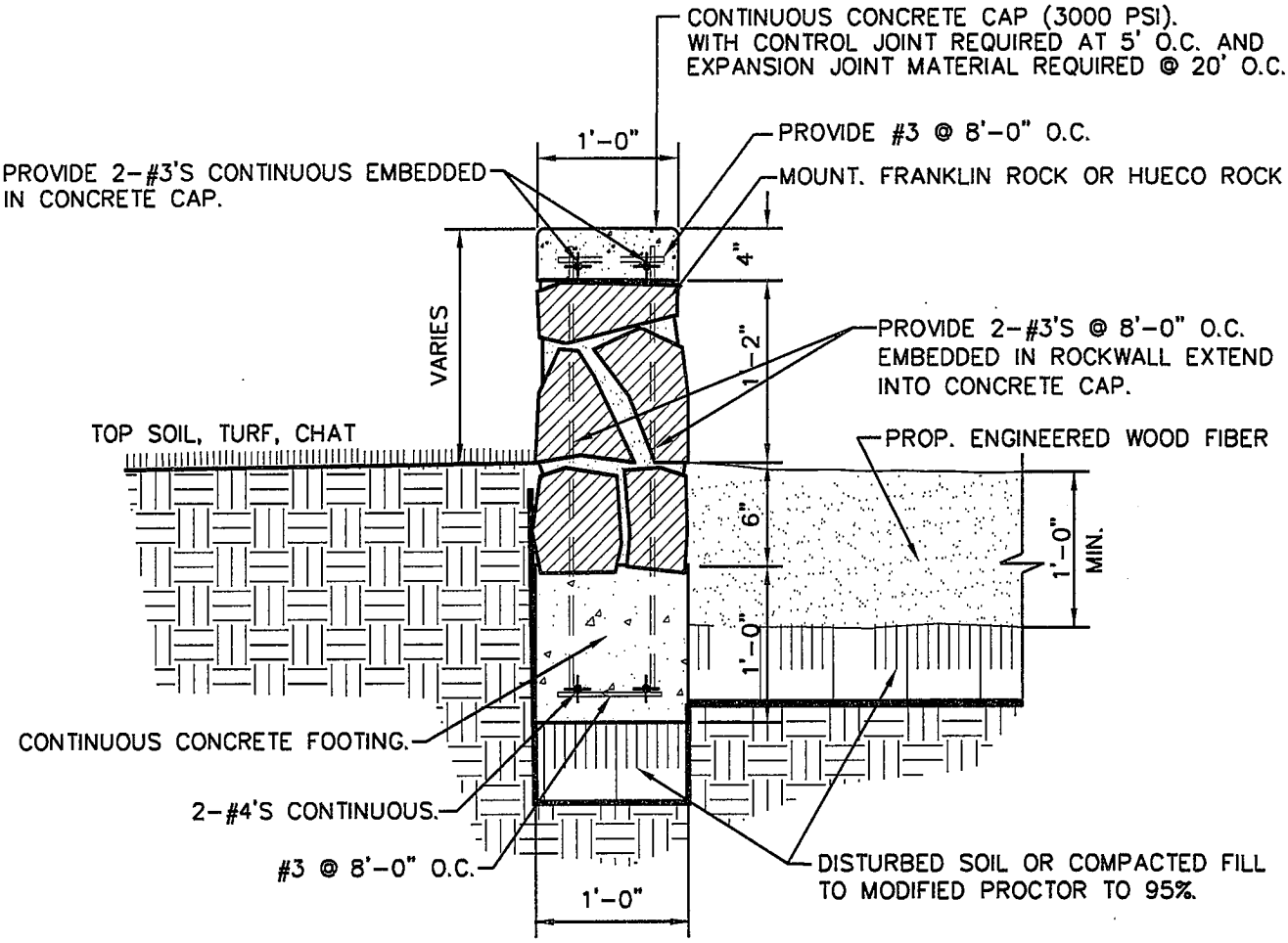
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

PLAYGROUND ROCKWALL WITH SIDEWALK

NTS



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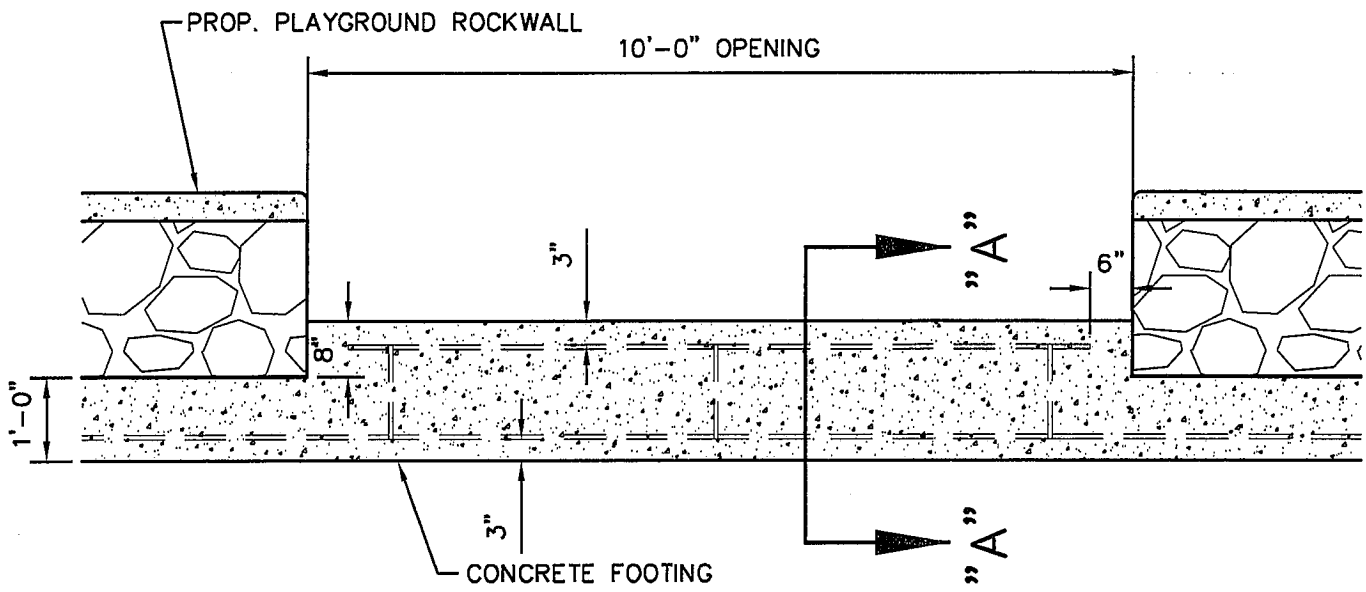
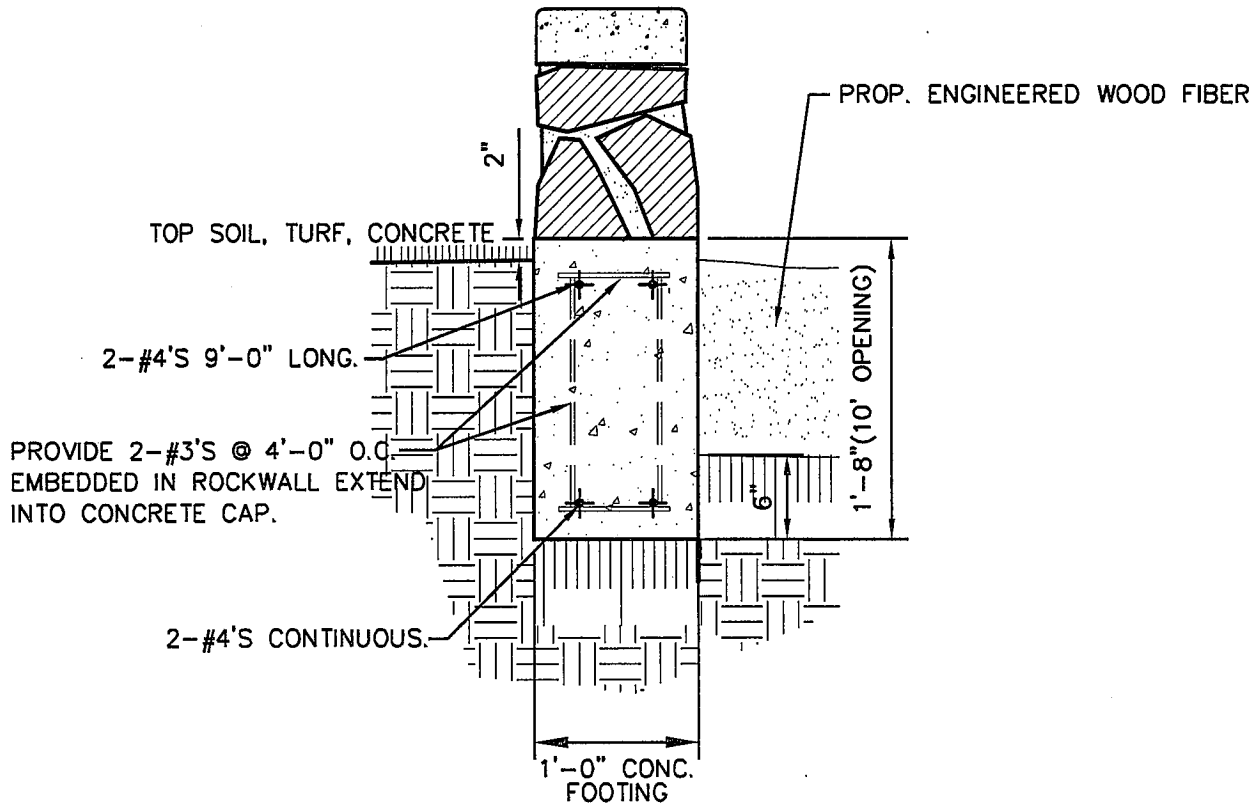
5. NO RIVER ROCK SHALL BE ALLOWED FOR ROCKWALLS.

CITY OF EL PASO PARKS & RECREATION	DETAIL NAME PLAYGROUND ROCKWALL NTS





SECTION "A"

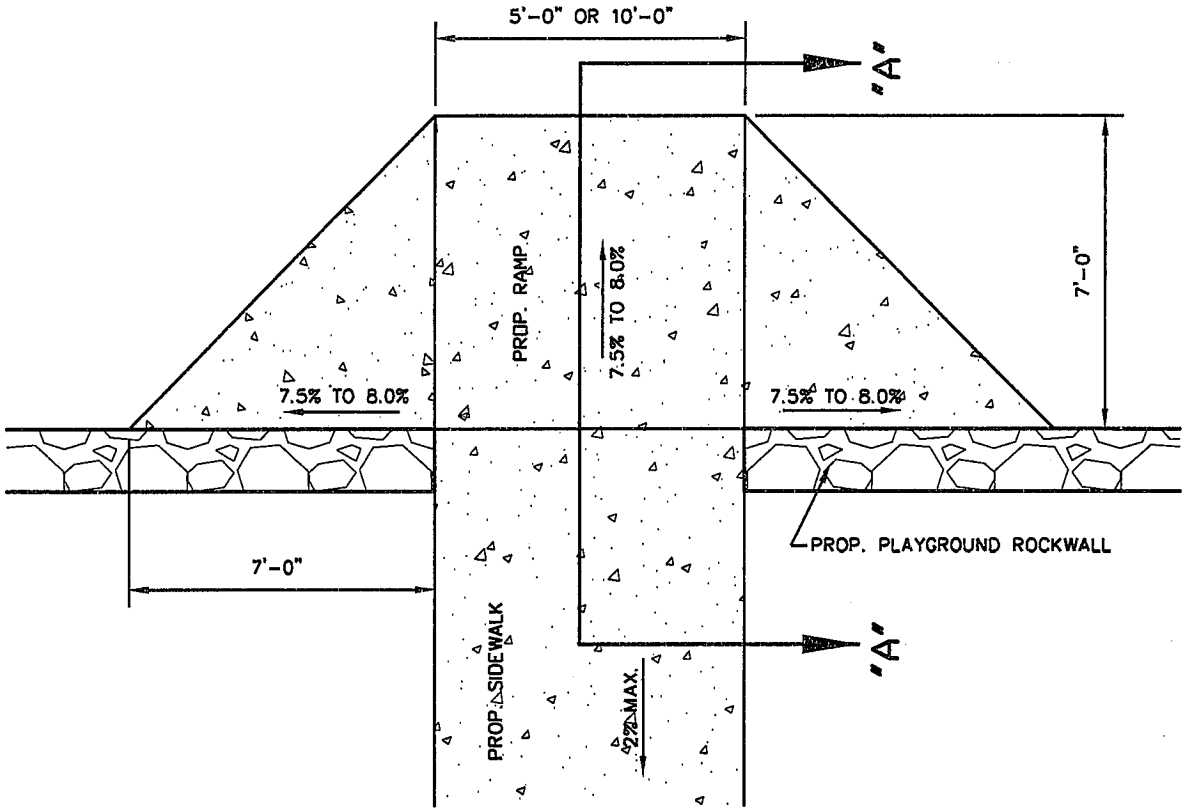
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

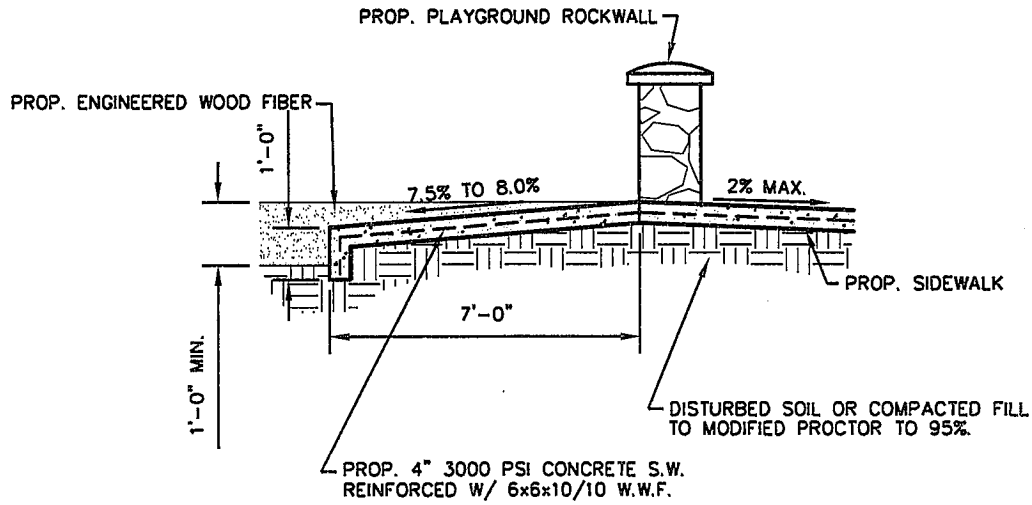
PLAYGROUND MAINTENANCE OPENING

NTS



PLAYGROUND RAMP

NTS



SECTION "A"–"A"

NTS

CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

PLAYGROUND RAMP

PLAYGROUND & SWING EQUIPMENT NOTES

1. EQUIPMENT AND COMPONENTS TO BE IPEMA CERTIFIED.
2. EQUIPMENT MANUFACTURER TO COMPLY WITH ISO 9001.
3. EQUIPMENT MANUFACTURER TO PROVIDE CLEAR INSTALLATION MANUAL AND PROJECT LAYOUT AT THE COMPLETION OF PROJECT HARD COPY.
4. EQUIPMENT AND FALL SURFACING MUST COMPLY WITH CURRENT STANDARDS AND GUIDELINES.
5. EQUIPMENT TO CALLED OUT WITH LENGTHS FOR OVERHEAD ACTIVITIES, SPACING BETWEEN RAILS FOR CURLEY CLIMBERS, TRACK RIDES, ETC.
6. EQUIPMENT TO HAVE SAFETY TOP RAIL WITH A MINIMUM OF 72 INCHES AT CLIMBING OR SLIDING ELEMENTS.
7. EQUIPMENT MANUFACTURER SALES REPRESENTATIVE TO BE NPSI CERTIFIED.
8. EQUIPMENT INSTALLATION TO BE INSPECTED AND CERTIFIED FOR PROPER ASSEMBLY BY MANUFACTURER REPRESENTATIVE NPSI CERTIFIED.
9. EQUIPMENT MUST BE SUPERSEDED BY SUBMITTAL PACKETS THAT HAVE THE FOLLOWING INFORMATION FOR REVIEW AND RELEASE BY PROJECT DESIGNER AND PARK AND RECREATION STAFF:
   a. PROJECT SITE PLAN REFLECTING CONSTRUCTION DRAWINGS OR ACTUAL FIELD CONDITIONS.
   b. SITE PLAN WITH CONSTRUCTION POINTS.
   c. SITE PLAN WITH DIMENSIONS FOR ALL USE ZONES AND BETWEEN INDEPENDENT PIECES OF EQUIPMENT.
   d. LOCATION OF CONTAINMENT WALL OR CURB.
   e. LOCATION, LIMITS AND DIMENSIONS OF ACCESSIBLE PATH OF TRAVEL
   f. LOCATION OF ANY SHADE CANOPIES AS APPLICABLE.
   g. EQUIPMENT COLOR SELECTION CHART.
   h. EQUIPMENT INFORMATION INCLUDING INSTALLATION.
10. MANUFACTURER TO PROVIDE A SEALED MAINTENANCE KIT TO INCLUDE: TOOL BOX, SAND PAPER, OWNER'S MANUAL, HARDWARE (20 PIECES EACH MINIMUM) ASSORTED SIZES OF VANDAL PROOF NUTS, BOLTS, WASHERS, FASTENING TOOLS (ONE EACH SIZE – WRENCH AND CHUCK KEYS), 4CANS OF PRIMER , 2 CANS OF EACH COLOR OF TOUCH-UP PAINT, PLASTIC REPAIR KIT, ANTI-GRAFFITI REMOVER.
11. EQUIPMENT INSTALLATION TO BE PERFORMED BY CONTRACTOR MEETING THE FOLLOWING REQUIREMENTS (a. AND b. ARE INSTALLATION EXPERIENCE REQUIREMENTS THAT MUST BE MET, c. AND d. ARE OPTIONAL REQUIREMENTS THAT MAY BE SUBSTITUTED FOR EITHER a. OR b.).
    a. MINIMUM 8 YEARS EXPERIENCE INSTALLING SAME EQUIPMENT.
    b. COMPLETE GOOD QUALITY INSTALLATION OF A MINIMUM OF 20 STRUCTURES OF SAME OR SIMILAR SIZE.
    c. TRAINING AND CERTIFICATION BY EQUIPMENT MANUFACTURER.
    d. NPSI CERTIFICATION.
12. EQUIPMENT AND FALL SURFACES TO BE AUDITED AND TESTED BY AN INDEPENDENT EQUIPMENT INVENTORY, AND PLAN VIEW WITH DIMENSIONS OF PLAYGROUND IMPROVEMENTS, EQUIPMENT MANUFACTURER, AND FALL SURFACES MANUFACTURER WITH TOLL FREE NUMBERS. ANY ITEMS FOUND DEFICIENT IN AUDIT MUST BE CORRECTED AND A RE-AUDIT OF CORRECTED ITEM TO INSURE THAT ALL DEFICIENT ITEMS ARE ADDRESSED.

CITY OF EL PASO PARKS & RECREATION	DETAIL NAME PLAYGROUND & SWING EQUIPMENT NOTES #1

PLAYGROUND & SWING EQUIPMENT NOTES

13. PLAYGROUND AREA TO BE FENCED AND PROPERLY SECURED THROUGHOUT, COURSE OF CONSTRUCTION AND UP TO ACCEPTANCE PROJECT.
14. EQUIPMENT TO HAVE MINIMUM 72" SAFETY USE (FALL) ZONE ASTM1487-11.
15. CONSTRUCTION WORK ON PLAYGROUND AREA WILL NOT COMMENCE UNTIL ALL MATERIALS AND SUPPLIES ARE IN POSSESSION OF CONTRACTORS.
16. CONTRACTOR WILL INSURE THAT WORK PROGRESS WILL BE ONGOING AND JOB SITE WILL NOT BE LEFT ABANDONED FOR ANY TIME PERIOD GREATER THAN 48 HOURS.
17. CONTRACTOR WILL INSURE THAT JOB SITE IS KEPT CLEAN AND CLEAR OF ANY CONSTRUCTION DEBRIS ON A DAILY BASIS.
18. CUSTOM SIGN TO BE FURNISHED BY PLAYGROUND MANUFACTURER WITH INFORMATION ON AGE APPROPRIATE USE, ADULT SUPERVISION RECOMMENDED, MANUFACTURER'S NAME AND 1-800 PHONE NUMBER, CITY OF EL PASO MAINTENANCE PHONE NUMBER OF (915) 621-6791 AND "WARNING" INSTALLATION OVER HARD SURFACE NOTICE. THE SPECIFIC VERBIAGE CAN BE WORKED OUT DURING PROJECT CONSTRUCTION.

CITY OF EL PASO

PARKS & RECREATION

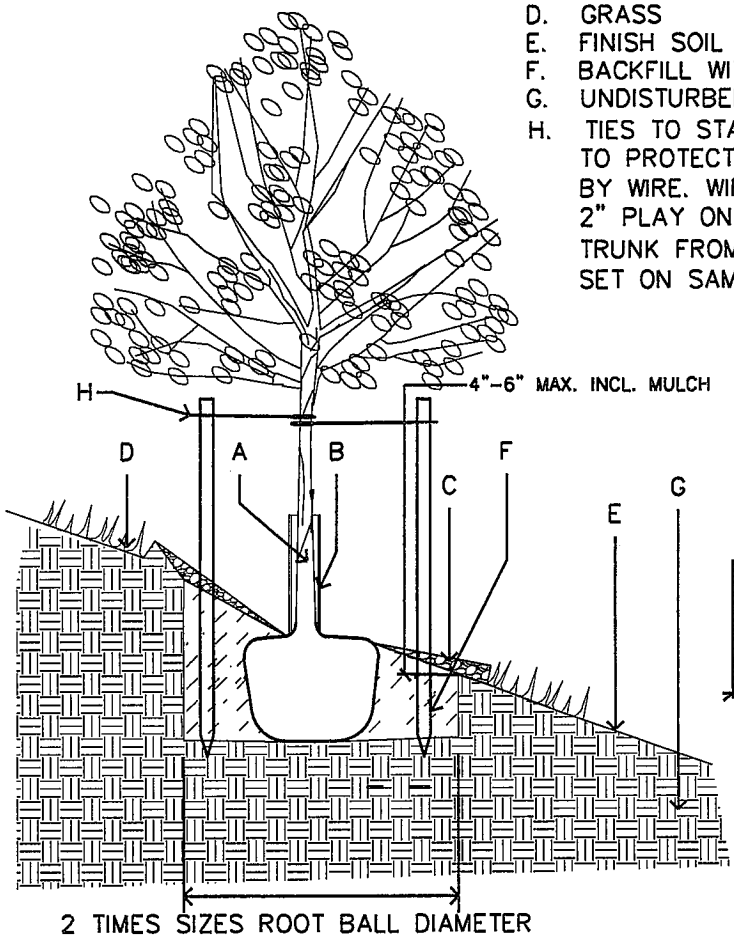
DETAIL NAME

PLAYGROUND & SWING EQUIPMENT NOTES #2

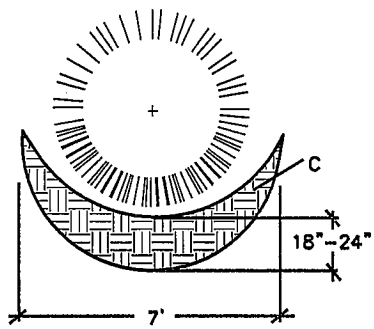
SHRUB AND TREE DETAILS

CITY OF EL PASO PARKS & RECREATION

A. TREE
B. TREEGUARD, ARBORGUARD
WWW.BENMEADOWS.COM
C. DEPTH OF BARK MULCH–SEE PLAN
D. GRASS
E. FINISH SOIL GRADE
F. BACKFILL WITH EXISTING NATIVE SOIL
G. UNDISTURBED SOIL
H. TIES TO STAKES TO HAVE RUBBER HOSE TO PROTECT TREE TRUNK FROM DAMAGE BY WIRE. WIRE TIES TO BE LOOSE (1" TO 2" PLAY ON PLAN) TO PROTECT TREE TRUNK FROM DAMAGE. WIRE TIES TO BE SET ON SAME TRUNK OR MAIN TRUNK.



PLAN



PLANTING ON SLOPE IN SODDED AREAS

NTS

GENERAL NOTES:

1. TREES PLANTED IN ROCKY, CALICHE AND CLAY SOILS TO HAVE PIT EXCAVATED 5 TIMES THE SIZE OF THE ROOTBALL.
2. TREES PLANTED IN ROCKY, CALICHE AND CLAY SOILS TO HAVE 1/3 TO 1/2 TOP SOIL BLENDED WITH CLAY SOIL AND USED AS BACKFILL.
3. TREES PLANTED IN ROCKY SOIL ARE TO HAVE ALL ROCKY MATERIAL LARGER THAN 1" IN SIZE REMOVED.

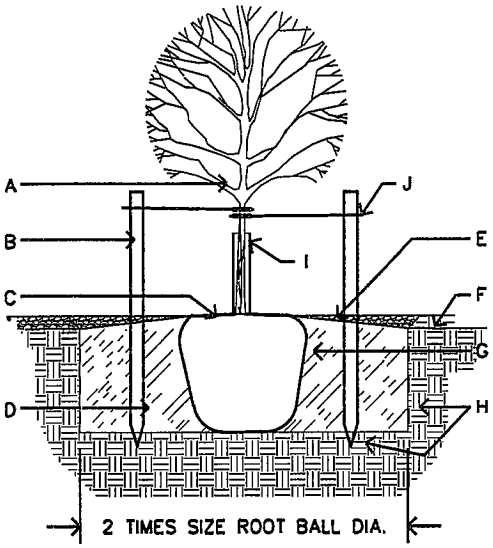
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

PLANTING ON SLOPE IN SODDED AREAS

NTS



A. TREE
B. STAKING AS NEEDED
C. 4" SPACE BETWEEN MULCH AND TREE
D. PLANTING HOLE
E. DEPTH OF BARK MULCH-SEE PLAN
F. FINISH SOIL GRADE
G. BACKFILL WITH EXISTING NATIVE SOIL
H. UNDISTURBED SOIL
I. TREEGUARD
J. TIES TO STAKES TO HAVE RUBBER HOSE TO PROTECT TREE TRUNK FROM DAMAGE BY WIRE. WIRE TIES TO BE LOOSE (1" TO 2" PLAY ON PLAN) TO PROTECT TREE TRUNK FROM DAMAGE. WIRE TIES TO BE SET ON SAME TRUNK OR MAIN TRUNK.

1. KEEP SOIL BELOW ROOT BALL UNDISTURBED TO PREVENT TREE FROM SETTLING.
2. REMOVE ANY EXCESS SOIL FROM TOP OF ROOTBALL TO EXPOSE ROOT FLARE (WHERE TOP MOST ROOT EMERGES FROM THE TRUNK). PLANT WITH ROOT FLARE THAN FINISH GRADE 1"-2" HIGHER.
3. PRIOR TO BACKFILLING, REMOVE BURLAP, ROPE, TWINE, AND WIRE FROM SIDES AND TOP OF ROOTBALL AND FROM PLANTING HOLE, CUT ANY ROOTS THAT ARE CIRCLING THE CONTAINER.
4. TAMP SOIL FIRMLY AROUND BASE OF ROOTBALL WITH FOOT PRESSURE.
5. AT TIME OF PLANTING, ONLY PRUNE CO-DOMINANT LEADERS (DOES NOT APPLY TO MULTI-TRUNK SPECIMENS), CROSSOVER LIMBS, AND DEAD OR BROKEN BRANCHES.
6. DO NOT ALLOW MULCH IN CONTACT WITH TREE TRUNK, KEEP AT LEAST 4" AWAY FROM TRUNK.
7. INSTALL TREE GUARD.
8. WHEN DONE, THOUROUGHLY WATER TO ELIMINATE AIR POCKETS.
9. STAKING IS NOT REQUIRED - STAKE TREES ONLY IF TREE CANNOT STAND ALONE AND WITH APPROVAL OF THE LANDSCAPE ARCHITECT. CONTRACTOR SHALL NOT STAKE ALL TREES INDISCRIMINANTELY, APPROVAL MUST BE OBTAINED TO STAKE TREES.
10. WITH APPROVAL, PROVIDE MIN. 3 STAKES/ TREE (TYP.) IN A TRIANGULAR PATTERN, STAKED INTO UNDISTURBED SOIL WITH CLARK'S TREE STAKE KIT OR APPROVED EQUAL, REMOVE AFTER ONE GROWING SEASON.
11. TOP OF ROOT BALL SHALL BE LEVEL WITH TOP OF MULCH OR BARK. MULCH SHALL BE FEATHERED TO FULL DEPTH.

GENERAL NOTES:

1. TREES PLANTED IN ROCKY, CALICHE AND CLAY SOILS TO HAVE PIT EXCAVATED 5 TIMES THE SIZE OF THE ROOTBALL.
2. TREES PLANTED IN ROCKY, CALICHE AND CLAY SOILS TO HAVE 1/3 TO 1/2 TOP SOIL BLENDED WITH CLAY SOIL AND USED AS BACKFILL.
3. TREES PLANTED IN ROCKY SOIL ARE TO HAVE ALL ROCKY MATERIAL LARGER THAN 1" IN SIZE REMOVED.

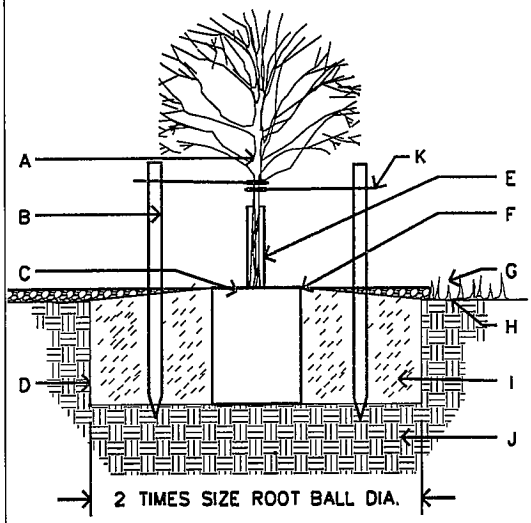
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

TREE PLANTING, BALLED & BURLAP

NTS



A. TREE
B. STAKING AS NEEDED
C. 4" SPACE BETWEEN MULCH AND TREE
D. SLOPE ON SIDES OF PLANTING HOLE
E. TREEGUARD, ARBORGUARD WWW.BENMEADOWS.COM
F. DEPTH OF BARK MULCH-SEE PLAN
G. GRASS
H. FINISH SOIL GRADE
I. BACKFILL WITH EXISTING NATIVE SOIL
J. UNDISTURBED SOIL
K. TIES TO STAKES TO HAVE RUBBER HOSE TO PROTECT TREE TRUNK FROM DAMAGE BY WIRE. WIRE TIES TO BE LOOSE (1" TO 2" PLAY ON PLAN) TO PROTECT TREE TRUNK FROM DAMAGE. WIRE TIES TO BE SET ON SAME TRUNK OR MAIN TRUNK.

1. KEEP SOIL BELOW ROOT BALL UNDISTURBED TO PREVENT TREE FROM SETTLING.
2. REMOVE ANY EXCESS SOIL FROM TOP OF ROOTBALL TO EXPOSE ROOT FLARE (WHERE TOP MOST ROOT EMERGES FROM THE TRUNK). PLANT WITH ROOT FLARE THAN FINISH GRADE 1"-2" HIGHER.
3. REMOVE CONTAINER AND CUT ANY ROOTS THAT ARE CIRCLING THE CONTAINER. PRIOR TO SETTING TREE IN PLANTING HOLE (PIT).
4. TAMP SOIL FIRMLY AROUND BASE OF ROOTBALL WITH FOOT PRESSURE.
5. AT TIME OF PLANTING, ONLY PRUNE CO-DOMINANT LEADERS (DOES NOT APPLY TO MULTI-TRUNK SPECIMENS), CROSSOVER LIMBS, AND DEAD OR BROKEN BRANCHES.
6. DO NOT ALLOW MULCH IN CONTACT WITH TREE TRUNK, KEEP AT LEAST 4" AWAY FROM TRUNK.
7. INSTALL TREE GUARD.
8. WHEN DONE, THOUROUGHLY WATER TO ELIMINATE AIR POCKETS.
9. STAKING IS NOT REQUIRED - STAKE TREES ONLY IF TREE CANNOT STAND ALONE AND WITH APPROVAL OF THE LANDSCAPE ARCHITECT. CONTRACTOR SHALL NOT STAKE ALL TREES INDISCRIMINANTELY, APPROVAL MUST BE OBTAINED TO STAKE TREES.
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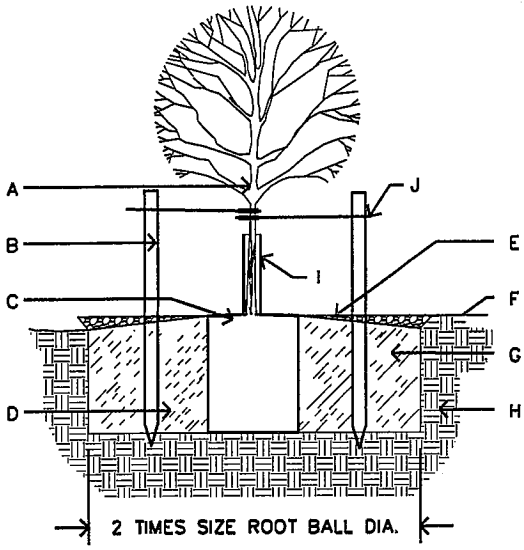
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

TREE PLANTING, CONTAINER IN SODDED AREAS

NTS



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CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

TREE PLANTING, CONTAINER

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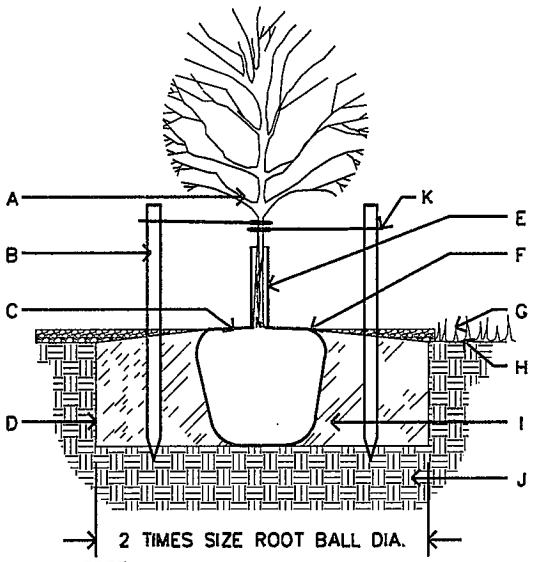

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CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

TREE PLANTING, BALLED & BURLAP IN SODDED AREAS

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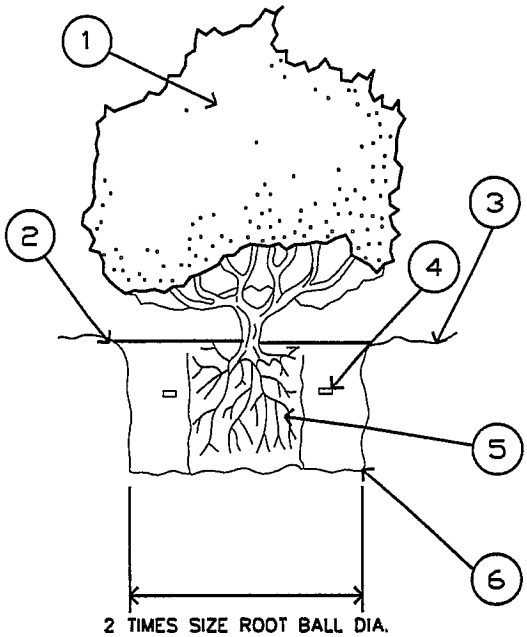

EXCAVATE AND REPLACE WITH SAME SOIL. REMOVE STONES 2" OR LARGER.

LEGEND

1. SHRUB OR VINE PER PLAN
2. EARTH WATERING BASIN (COVER WITH SPECIFIED MULCH ON PLAN).
3. FINISH GRADE
4. 7 GRAM PLANT TABLETS
   1 GAL = 3, 5 GAL = 6, 10-15 GAL = 9
5. ROOTBALL (SET CROWN FLUSH WITH FINISH GRADE) COVER 2" SPECIFIED MULCH.
6. UNDISTURBED NATIVE SOIL

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CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

SHRUB PLANTING

NTS

GENERAL NOTES

CITY OF EL PASO PARKS & RECREATION

GENERAL NOTES

1. THE CONTRACTOR SHALL VISIT AND FAMILIARIZE HIMSELF WITH THE PROJECT SITE PRIOR TO SUBMITTING HIS BID.
2. CONTRACTOR SHALL BE FAMILIAR WITH PLANS, DETAILS AND SPECIFICATIONS AS THEY PERTAIN TO THE SITE, IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE OWNER'S REPRESENTATIVE IF ANY ITEMS CONTAINED WITHIN THE SCOPE OF WORK DEFINED HEREIN, ARE IN CONFLICT WITH THE PROPOSED CONTRACT.
3. EXISTING UTILITY LINES ARE TO BE BLUE STAKED PRIOR TO EXCAVATION, CHECK AND FIELD VERIFY ALL SITE CONDITIONS, UTILITIES AND SERVICES PRIOR TO EXCAVATION. CONSTRUCTION WORK IN CLOSE PROXIMITY TO UNDER-GROUND UTILITIES SHALL BE COORDINATED WITH APPROPRIATE AGENCY.
4. THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION SCHEDULE WITH OWNER, ALL AFFECTED UTILITY COMPANIES, AND ALL OTHER ENTITIES HAVING JURISDICTION OVER THE PROJECT.
5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES PRIOR TO COMMENCING WITH THE WORK. ANY DISCREPANCY NOTED SHALL BE REPORTED IMMEDIATELY TO THE PROJECT MANAGER. FAILURE OF THE CONTRACTOR TO REPORT ANY FIELD AND PLAN DISCREPANCIES SHALL MAKE THE CONTRACTOR RESPONSIBLE FOR WORK THAT IS PERFORMED.
6. VIBRATORY ROLLERS SHALL NOT BE PERMITTED ON ANY PHASE OF THIS PROJECT, UNLESS APPROVED IN WRITING BY THE CITY ENGINEER.
7. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN STRICT CONFORMANCE WITH ALL CURRENT SAFETY CODES AND STANDARDS, INCLUDING BUT NOT LIMITED TO, OSHA REQUIREMENTS.
8. WARNING! BEFORE EXCAVATING, CONTRACTOR SHALL LOCATE AND PROTECT ALL UNDERGROUND UTILITIES LINES. CONTRACTOR SHALL REPLACE ANY UTILITIES DAMAGED DURING CONSTRUCTION AT NO ADDITIONAL COST TO OWNER.
9. CONTRACTOR SHALL WATER CONSTRUCTION SITE AREA A MINIMUM OF TWICE A DAY TO DUST CONTROL, ONCE IN THE MORNING AND ONCE IN THE AFTERNOON. THIS SHALL ALSO BE DONE ON WEEKENDS AND HOLIDAYS.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING IMPROVEMENTS IN THE PROJECT AREA AND ITS VICINITY. ANY DAMAGE RESULTING FROM CONTRACTOR WORK SHALL BE RESTORED AT NO COST TO OWNER.
11. CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATION DURING CONSTRUCTION ACTIVITY.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ENVIRONMENTAL FINES RESULTING FROM HIS/HER WORK AND HOLD THE OWNER HARMLESS IN SUCH CASES.
13. CONTRACTOR SHALL SECURE THE SITE DURING CONSTRUCTION TO PROTECT THE AREA FROM VANDALISM AND ILLEGAL TRESPASSING. CONTRACTOR SHALL SECURE THE SITE AT HIS/HER OWN COST. CONTRACTOR SHALL SITE PROTECTION MEASURES SHALL BE SUBMITTED TO THE PARKS AND RECREATION DEPT. FOR APPROVAL.
14. ALL EXISTING UTILITIES CURRENTLY IN SERVICE MUST REMAIN IN SERVICE THROUGHOUT CONSTRUCTION EXCEPT AS NOTED IN THE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES (INCLUDING SERVICE CONNECTIONS) FROM DAMAGE AS A RESULT OF CONSTRUCTION ACTIVITIES.
15. PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO VERIFY LOCATION OF EXISTING UTILITIES & CONTRACTOR SHALL CALL THE RESPECTIVE "1-CALL" NUMBER FOR SUCH UTILITIES.
16. CONTRACTOR SHALL INSURE THE FOLLOWING: ALL ACCESSIBLE ROUTES SHALL NOT EXCEED A RUNNING SLOPE GREATER THEN 1:20(5%). NO WHERE SHALL THE CROSS SLOPE OF AN ACCESSIBLE ROUTE EXCEED 1:50(2%). MAXIMUM SLOPE OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP, OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20(5%). MAXIMUM RUNNING SLOPE OF ANY CURB RAMP SHALL NOT EXCEED 1:12(8.33%) SLOPE. ALL ACCESSIBLE PATHS SHALL COMPLY WITH TAS AND ADAAG.

CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

GENERAL NOTES

IRRIGATION PLAN GENERAL NOTES

1. IRRIGATION PLAN IS DIAGRAMMATIC IN NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR ACCOMPLISHING FULL COVERAGE IN ALL AREAS WITH SPECIFIED EQUIPMENT. ANY DISCREPANCIES IN THE PLAN SHOULD BE BROUGHT TO THE PROJECT MANAGER'S ATTENTION DURING CONSTRUCTION.
2. ALL FITTINGS AND NECESSARY EQUIPMENT REQUIRED TO MAKE THIS IRRIGATION SYSTEM OPERATE PROPERLY AND TO COMPLY WITH LOCAL AND STATE CODES ARE INCIDENTAL TO THESE PLANS AND ARE THE CONTRACTOR'S RESPONSIBILITY.
3. CONTRACTOR WILL BE HELD LIABLE FOR GAINING ACCESS UNDER ALL PAVEMENTS.
4. SLEEVES SHOWN ON THE PLANS SHOULD BE VERIFIED FOR ACCESSIBILITY AND FEASIBILITY BEFORE BID IS MADE.
5. THE CONTRACTOR SHALL LOCATE AND VERIFY EACH WATER TAP TO WHICH THE IRRIGATION SYSTEM WILL CONNECT. ALL EQUIPMENT AND INSTALLATION METHODS SHALL COMPLY WITH THE STANDARDS OF THE CITY OF EL PASO AND THE SPECIFICATIONS.
6. CONTRACTOR IS RESPONSIBLE FOR ALL CONNECTIONS AND VALVES REQUIRED FOR THE FULL IMPLEMENTATION OF THE SYSTEM.
7. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO INITIATING WORK.
8. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE OR INTERRUPTION IN SERVICE CAUSED BY HIS EXCAVATIONS AND/OR WORK.
9. EACH CONTROLLER WILL HAVE AN INDEPENDENT COMMON WIRE LOOPED TO THE VALVES CONNECTED TO IT.
10. REMOTE CONTROL VALVE WIRES ARE TO BE IN A SEPARATE TRENCH 5' FROM MAIN LINE ON NORTH OR WEST SIDE OF MAINLINE.
11. ALL REMOTE CONTROL VALVE WIRES NEED TO BE LABELED AT VALVE W/ WEATHER (WATER) PROOF LABELS AND AT CONTROLLER WITH CORRESPONDING LABEL. (LETTER AND/OR NUMBER TAGS IN SEQUENTIAL ORDER WILL BE PROVIDED).
12. SPLICING OF REMOTE CONTROL VALVE WIRES IS NOT ALLOWED BETWEEN CONTROLLER & VALVE BOX FOR WIRES MUST BE CONTINUOUS FROM CONTROLLER TO REMOTE CONTROL VALVE WITHOUT SPLICING.
13. ALL SPRINKLER HEADS SHALL BE ON STAINLESS STEEL RISERS WITH CHECK VALVE.
14. CONTRACTOR SHALL PROVIDE SLEEVES FOR NEW IRRIGATION LINES CROSSING UNDER CONCRETE SIDEWALKS. SLEEVES SHALL BE 2 TIMES THE PIPE SIZE EXTENDED 24" BEYOND EDGE OF SURFACE, BE WRAPPED WITH MINIMUM 4 MIL PLASTIC AND TAPED WITH 3M BRAND HEAVY DUTY PLASTIC.

CITY OF EL PASO

PARKS & RECREATION

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IRRIGATION PLAN GENERAL NOTES

NOTES FOR PLANTING:

1). IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PREVENT PLANTS FROM FALLING OR BEING BLOWN OVER AND TO STRAIGHTEN OR REPLANT ALL PLANTS WHICH ARE DAMAGED DUE TO WIND. PLANTS BLOWN OVER BY HIGH WINDS SHALL NOT BE A CAUSE FOR ADDITIONAL EXPENSE TO THE OWNER, BUT SHALL BE THE FINANCIAL RESPONSIBILITY OF CONTRACTOR.

2). TOPSOIL MATERIAL FOR PLANTING,SHALL BE FREE FROM HARD CLODS, STIFF CLAY, HARD PAN, STONES LARGER THAN 1" IN DIAMETER, NOXIOUS WEEDS AND PLANTS, SOD, PARTIALLY DISINTEGRATED DEBRIS, INSECTS OR ANY OTHER UNDESIRABLE MATERIAL. PLANTS OR SEEDS THAT WOULD BE TOXIC OR HARMFUL TO GROWTH.

3). CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF PLANT MATERIAL QUANTITIES.

4). IN THE EVENT OF VARIATION BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND THE PLANS, THE PLANS SHALL CONTROL. IMPROPER PLANT COUNT MADE BY THE LANDSCAPE CONTRACTOR SHALL BE NO CAUSE FOR ADDITIONAL COSTS TO THE OWNER.

5). THE CONTRACTOR SHALL MEET BOTH THE CONTAINER SIZE AND CALIPER SIZE, AS WELL AS HEIGHT AND SPREAD SPECIFICATIONS SPECIFIED.

6). EXCAVATE TWO TIMES GREATER THAN THE ROOT BALL-DIAMETER OF THE SHRUB, TWO TIMES GREATER THAN THE ROOT BALL FOR TREES. SCARIFY BOTTOM OF PLANTING PIT BEFORE PLACING PLANT. PLACEMENT OF PLANT SHALL BE PERPENDICULAR TO GROUND.

7). CONTRACTOR WILL NOT PLANT MATERIAL SHOWN ON PLANS WHEN IT IS EVIDENT THAT FIELD CONDITIONS HAVE CHANGES SINCE PLANS WERE DRAWN. ANY CHANGES ARE TO BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE DESIGNER BEFORE ANY PLANTING IS DONE IN THE AREA.

8). PLANT SUBSTITUTIONS WILL BE PERMITTED, REQUEST SUBSTITUTION IN WRITING GIVING REASONS FOR SUCH SUBSTITUTIONS.

9). TURF QUANTITY TAKE-OFF ARE THE RESPONSIBILITY OF THE CONTRACTOR.

10). TREAT ALL PLANTING AREAS WITH AN APPLICATION OF SURF. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR APPLICATION.

11). REMOVE ALL WIRE, STRING, WIRE BASKETS, BURLAP, CONTAINERS, ETC., FROM THE ROOTBALL OF PLANTS BEFORE BACKFILLING THE PLANTING HOLE.

12). SEEDED AREAS SHOULD BE MAINTAINED UNTIL A FULL GROWTH OF WILD GRASS OR SEEDED MATERIAL IS ACHIEVED.

13). WARRANTY FOR THE PLANTING MATERIAL SHALL BE ONE YEAR FROM THE DATE OF ACCEPTANCE. (TREES, SHRUBS AND GROUNDCOVER).

CITY OF EL PASO PARKS & RECREATION	DETAIL NAME NOTES FOR PLANTING

RECLAMATION SEEDING NOTES

1. ALL THE GRASS SEED SHALL BE CERTIFIED BY STATE OF ORIGIN. THE CERTIFICATION AUTHORITY FOTR THE STATE OF TEXAS IS THE TEXAS DEPARTMENT OF AGRICULTURE.
2. TIMING AND PROCEDURE: IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE LANDSCAPE ARCHITECT AND/OR OWNER'S REPRESENTATIVE WITH AN IMPLEMENTATION PLAN FOR THE WORK IN ORDER TO COORDINATE SEEDING PROCEDURES. SEEDING SHALL NOT COMMENCE UNTIL AFTER THE IMPLEMENTATION PLAN IS APPROVED AND ALL GRADING AND SOIL PREPARATION WORK HAS BEEN COMPLETED, INSPECTED AND APPROVED BY LANDSCAPE ARCHITECT AND/OR OWNER'S REPRESENTATIVE.

SEEDING OF AREAS SHALL BE PERFORMED BETWEEN THE DATES OF MAY 1ST AND AUGUST 30TH. SEEDING MAY TAKE PLACE FROM SEPTEMBER 1ST TO APRIL 30TH BUT SEED QUANTITIES FOR GRASS SHALL BE 25% (PLS PER POUND) GREATER THAN QUANTITIES SPECIFIED TO ACCOUNT FOR SEED MORTALITY.

4. PRIOR TO SEEDING, CONTRACTOR SHALL SUMMIT SEED BAG TAGS AND WEIGHTS PER BAG AND COPIES OF SEED MIXES IDENTIFIED BY PROJECT NAME FOR APPROVAL BY LANDSCAPE ARCHITECTAND/O OWNER'S REPRESENTATIVE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING AND CARING FOR RECLAMATION SEEDED AREAS UNTIL FINAL ACCEPTANCE OF THE WORK AND SHALL REPAIR AT CONTRACTOR EXPENSE ANY DAMAGE TO SEEDED AREAS CAUSED BY PEDESTRIAN OR VEHICULAR TRAFFIC OR VANDALISM.
6. GRASS SEED SHALL BE FRESH, WEED FREE, RECLEANED SEED OF THE LATEST CROP, MIXED IN THE PROPORTIONS BY WEIGHT, AND BE PURE LIVE SEED AS DENOTED ON THE PLAN SHEET.
7. EROSION CONTROL BLANKETS SHALL BE PROVIDED AS PER SPECIFICATIONS PROVIDED BY MANUFACTURER, UNLESS OTHERWISE APPROVED IN WRITING PRIOR TO WORK.
8. ALL COMPETITIVE VEGETATION SHALL BE UPROOTED DURING SEED BED REPARATION AND THE SOIL SHALL BE UNIFORMLY WORKED TO A SMOOTH, FIRM SURFACE FREE PF CLODS, STONES OR OTHER FOREIGN MATERIALS, 4" OR LARGER, THAT WOULD INTERFERE WITH SEEDING EQUIPMENT AND GERMINATION. SOIL PREPARATION SHALL NOR OCCUR WHEN THE WIND IS OVER 10 MPH AND IS CAUSING A DUST PROBLEM TO ADJUSTING AREAS.
9. SEED TYPES AND RATES SHALL BE AS SHOWN ON PLANS. RECLAMATION AREAS SHALL BE DRILL SEEDED UNLESS OTHERWISE APPROVED IN WRITING BY LANDSCAPE ARCHITECT PRIOR TO WORK.
10. CONTRACTOR'S VEHICLES AND THE EQUIPMENT SHALL NOT TRAVEL OVER THE SEEDED AREAS.
11. NO SEEDING OPERATIONS MAY BE CONDUCTED WHEN STEADY WIND SPEEDS EXCEED 10 MPH. IF THE WINDS EXCEED 10 MPH, SEEDING OPERATIONS WILL BE HALTED.

CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

RECLAMATION SEEDING NOTES

SODDING NOTES

SUBMIT THE FOLLOWING:

1. SOD CERTIFICATION FOR GRASS SPECIES AND NAME AND LOCATION OF SOD SOURCE. SODDING SCHEDULE, INCLUDING DATES AND TYPE OF WORK TO BE PERFORMED. PRIOR TO ORDERING, NAME OF SUPPLIER OF SOIL AMENDMENTS MATERIALS.

QUALITY ASSURANCE

2. MINIMUM AGE 18 MONTHS, WITH ROOT DEVELOPMENT THAT WILL SUPPORT ITS OWN WEIGHT WITHOUT TEARING, WHEN SUSPENDED VERTICALLY BY HOLDING THE UPPER TWO CORNERS.

DELIVERY, STORAGE AND HANDLING

3. TIME DELIVERY SO THAT SOD WILL BE PLACED WITHIN 24 HOURS OF DELIVERY AT SITE. PROTECT AGAINST DRYING AND BREAKING OF ROLLED STRIPS.

4. DELIVER PACKAGED MATERIALS IN CONTAINERS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. PROTECT MATERIALS FROM DETERIORATION DURING DELIVERY AND WHILE STORED ON SITE.

SITE CONDITIONS

5. PROCEED WITH AND COMPLETE LANDSCAPE WORK AS RAPIDLY AS PORTIONS OF SITE BECOME AVAILABLE, WORKING WITHIN SEASONAL LIMITATIONS FOR EACH KIND OF LANDSCAPE WORK REQUIRED.

6. WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS RUBBLE FILL, ADVERSE DRAINAGE CONDITIONS, OR OBSTRUCTIONS CONSULT THE LANDSCAPE DESIGNER AND CITY OF EL PASO PARKS AND RECREATION BEFORE PLANTING.

7. PLANT OR INSTALL MATERIALS DURING NORMAL PLANTING SEASONS FOR EACH TYPE OF LANDSCAPE WORK REQUIRED. CORRELATE PLANTING WITH SPECIFIED MAINTENANCE PERIODS TO PROVIDE MAINTENANCE FROM DATE OF FINAL ACCEPTANCE.

SOIL AMENDMENTS

8. PROVIDE SOIL ANALYSIS BEFORE ADDITION OF SOIL AMENDMENTS & ANALYSES OF SOIL AMENDMENTS. ORGANIC AMENDMENTS SHALL CONSIST OF WELL-AGED ORGANIC COMPOST OR APPROVED EQUAL.

FERTILIZER

9. SLOW-RELEASE STARTER FERTILIZER GUARANTEED ANALYSIS OF 20% NITROGEN, 26% PHOSPHORIC ACID AND 6% POTASH BY WEIGHT OR SIMILAR APPROVED COMPOSITION AT A RATE OF 1 LB OF ACTUAL NITROGEN PER 1,000 SQUARE FEET BY WEIGHT. TOP-DRESSING FERTILIZER GUARANTEED ANALYSIS OF 18-24-16 OR SIMILAR APPROVED COMPOSITION AT A RATE OF 1 LB OF ACTUAL NITROGEN PER 1,000 SQUARE FEET BY WEIGHT.

GRASS MATERIALS

10. PROVIDE STRONGLY ROOTED SOD, NOT LESS THAN 18 MONTHS OLD AND FREE OF WEEDS AND UNDESIRABLE NATIVE GRASSES AND MACHINE CUT TO PAD THICKNESS OF 3/4 INCH (PLUS OR MINUS 1/4 INCH), EXCLUDING TOP GROWTH AND THATCH. PROVIDE SOD CAPABLE OF GROWTH AND DEVELOPMENT WHEN PLANTED. CUT SOD PIECES A MINIMUM OF 18 INCHES WIDE.

PREPARATION

11. PRIOR TO START OF SOIL PREPARATION ALL FINISH GRADES SHALL BE ESTABLISHED AND APPROVED AS MEETING THE REQUIREMENTS OF THE GRADING PLAN. APPLY A UNIFORM ONE-INCH LAYER (3 C.Y./1000 SQUARE FEET) OF ORGANIC SOIL AMENDMENT AND 1 LB. OF STARTER FERTILIZER PER EACH 1000 SQUARE FEET TO THE ENTIRE AREA TO BE SODDED. AFTER APPLICATION OF ORGANIC AMENDMENT AND STARTER FERTILIZER ALL AREAS TO BE SODDED SHALL BE THOROUGHLY ROTOTILLED TO A MINIMUM DEPTH OF 12 INCHES. AFTER ROTOTILLING IS COMPLETE AT CROSS DIRECTIONS, DRAG TO AN EVEN GRADE, THEN ROLL FOR FIRMNESS. RAKE TILLED AREA AND REMOVE STONES OVER 1 INCH IN ANY DIMENSION, STICKS, ROOTS, RUBBISH AND OTHER EXTRANEOUS MATTER. REMOVE EXCESS TO AVOID SMOTHERING GRASS. ROLL ENTIRE AREA WITH WEIGHTED HAND ROLLER.

CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

SODDING NOTES #1

SODDING NOTES

SODDING OPERATIONS

12. LAY SOD WITHIN 24 HOURS OF DELIVERY AT SITE. DO NOT PLANT DORMANT SOD OR ON FROZEN GROUND.

13. IF SOIL IS DRY, MOISTEN AREAS BEFORE SODDING. WATER THOROUGHLY AND ALLOW SURFACE MOISTURE TO DRY. DO NOT CREATE A MUDDY SOIL CONDITION.

14. LAY SOD TO FORM A SOLID MASS WITH TIGHTLY FITTED JOINTS. NO JOINT SHALL BE MORE THAN $\frac{1}{8}$". LAY SOD OVER MOISTENED SOIL, LIGHTLY RAKING THE SOIL AHEAD OF EACH SOD STRIP. BUTT ENDS AND SIDES OF SOD STRIPS; DO NOT OVERLAP. STAGGER STRIPS TO OFF-SET JOINTS IN ADJACENT COURSES. LAY SOD PARALLEL TO CONTOURS OF SLOPE. WORK FROM BOARDS TO AVOID DAMAGE TO SUBSOIL OR SOD. TAMP FIRMLY AND EVENLY BY HAND TO ENSURE CONTACT WITH SUBSOIL. WORK SIFTED TOPSOIL OR SAND INTO MINOR CRACKS BETWEEN PIECES OF SOD

15. WATER SOD THOROUGHLY WITH A FINE SPRAY IMMEDIATELY AFTER PLANTING.

MAINTENANCE

16. BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING.

17. MAINTAIN LAWNS FOR NOT LESS THAN A PERIOD OF AT LEAST 60 DAYS AFTER COMPLETION AND ACCEPTANCE OF SOD. INSPECTION TO DETERMINE ACCEPTANCE OF SODDED LAWNS WILL BE MADE BY PARKS STAFF AND SITES SOUTHWEST REPRESENTATIVE UPON CONTRACTOR'S REQUEST. PROVIDE NOTIFICATION AT LEAST 10 WORKING DAYS BEFORE REQUESTED INSPECTION DATE. AND LONGER AS REQUIRED TO ESTABLISH AN ACCEPTABLE LAWN.

18. SODDED LAWNS TO BE MAINTAINED NOT LESS THAN 60 DAYS AFTER COMPLETION AND ACCEPTANCE OF SODDING OPERATIONS.

19. MAINTENANCE TO INCLUDE:
    WATER SOD THOROUGH EVERY 2 TO 3 DAYS MIN. AS REQUIRED TO ESTABLISH PROPER ROOTING.
    REPAIR, REWORK AND RESOD AREAS THAT HAVE WASHED OUT OR ERODED.
    REPLACE DEAD OR UNDESIRABLE SOD SECTIONS WITH NEW SOD.
    MOW LAWN AREAS WHEN THE GRASS IS OVER 2 INCHES HIGH FOR FIRST CUTTING.
    FERTILIZE LAWN WITH TOP DRESSING FERTILIZER AT 1 LB. PER 1,000 SQ.FT. OF NITROGEN, WATER THOROUGHLY.

20. ADDITIONAL LAWN MAINTENANCE CONSISTS OF WEEDING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGRADING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.

CLEANUP AND PROTECTION

21. DURING THE WORK, KEEP PAVEMENTS CLEAN AND WORK AREA IN AN ORDERLY CONDITION.

22. PROTECT WORK AND MATERIALS FROM DAMAGE DUE TO SODDING OPERATIONS, OPERATIONS BY OTHER CONTRACTORS AND TRADES AND TRESPASSERS. MAINTAIN PROTECTION DURING INSTALLATION AND MAINTENANCE PERIODS. TREAT, REPAIR OR REPLACE DAMAGED WORK AS DIRECTED.

INSPECTION AND ACCEPTANCE

23. WHEN INSPECTED WORK DOES NOT COMPLY WITH REQUIREMENTS, REPLACE REJECTED WORK AND CONTINUE SPECIFIED MAINTENANCE UNTIL REINSPECTED BY THE LANDSCAPE DESIGNER AND CITY OF EL PASO PARKS AND RECREATION AND FOUND TO BE ACCEPTABLE. REMOVE REJECTED SOD AND MATERIALS PROMPTLY FROM PROJECT SITE.

CITY OF EL PASO

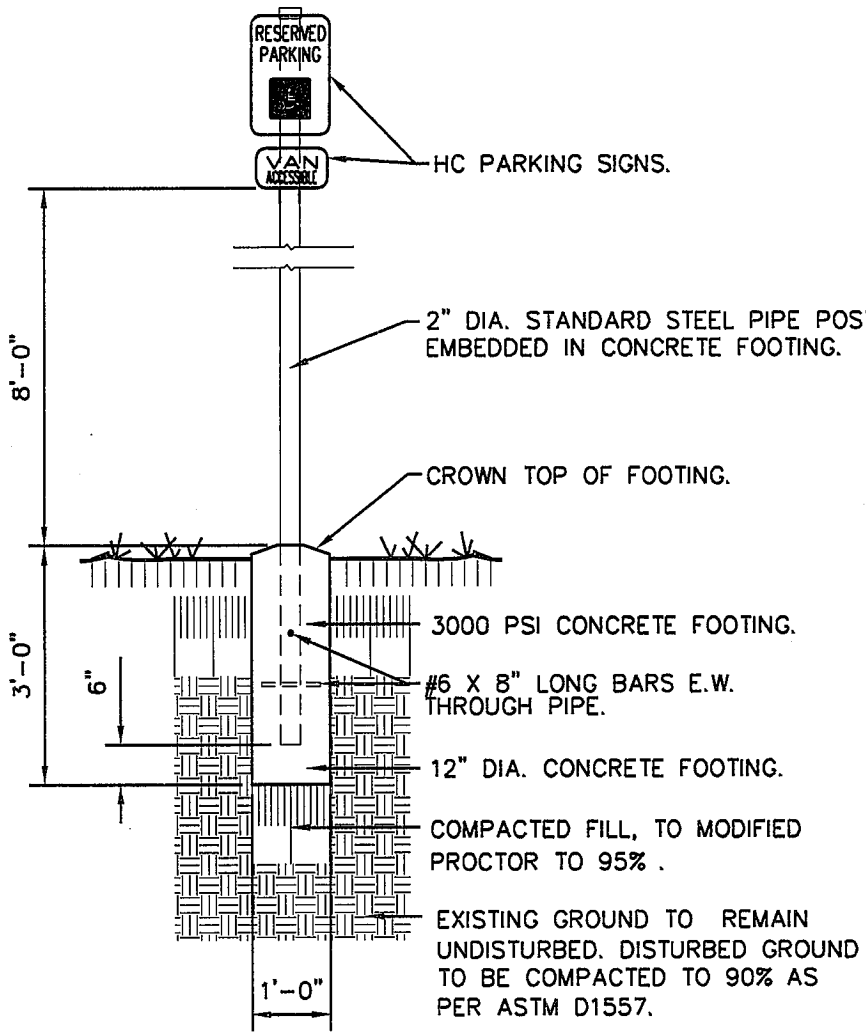
PARKS & RECREATION

DETAIL NAME

SODDING NOTES #2

PARK SIGNS

CITY OF EL PASO PARKS & RECREATION



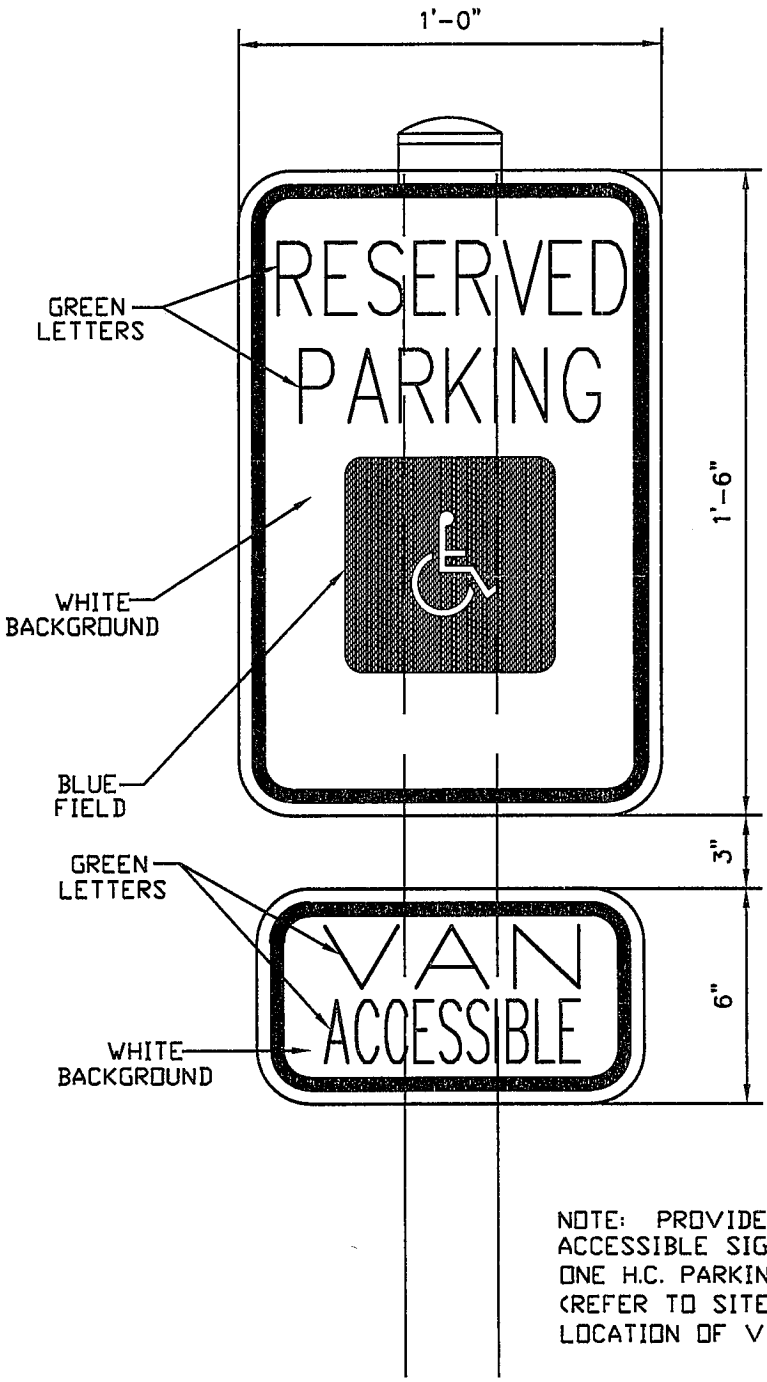
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

HC PARKING SIGN #1

NTS



NOTE: PROVIDE VAN ACCESSIBLE SIGN AT ONE H.C. PARKING SPACE (REFER TO SITE PLAN FOR LOCATION OF VAN SPACE).

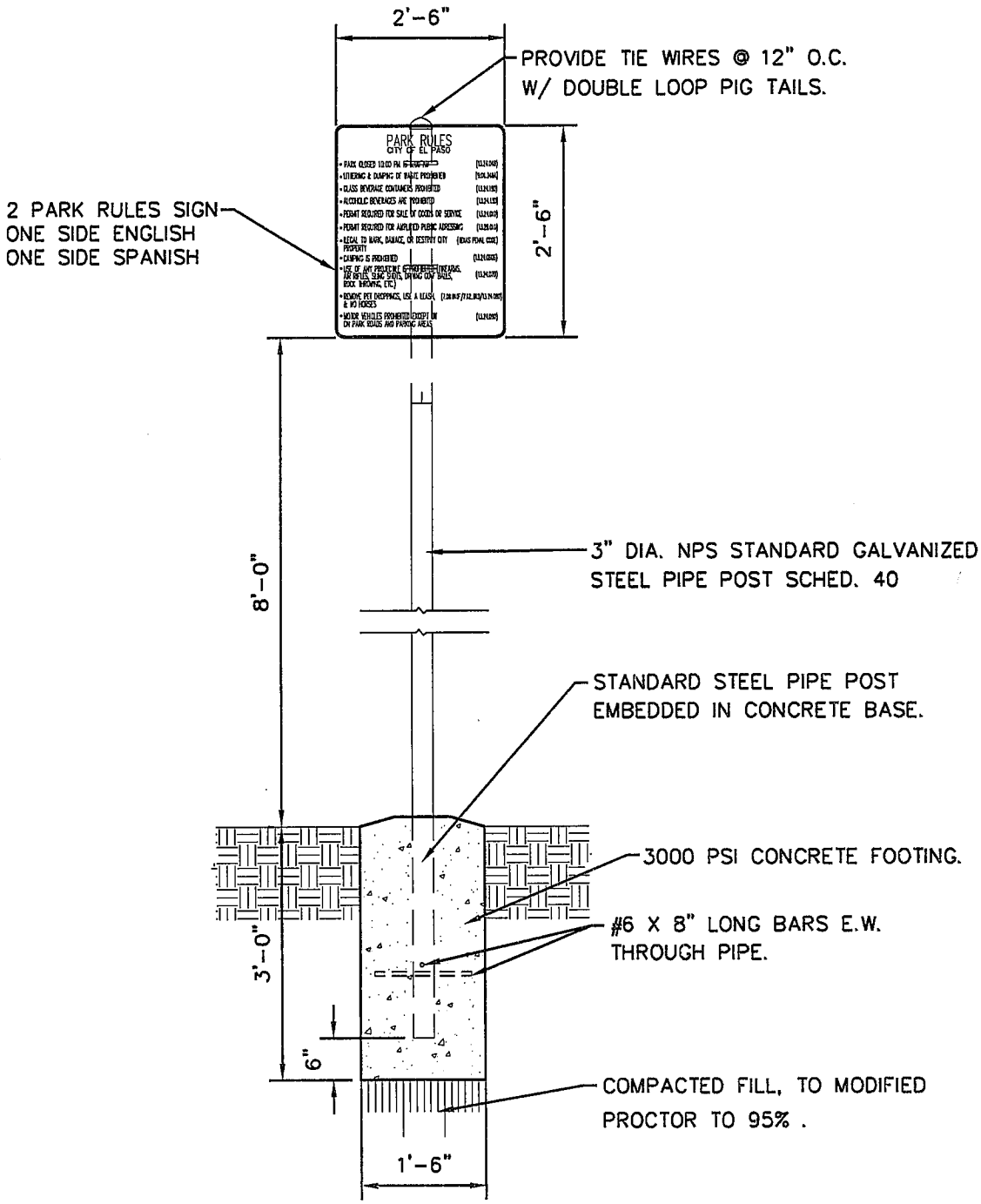
CITY OF EL PASO

PARKS & RECREATION

DETAIL NAME

HC PARKING SIGN #2

NTS



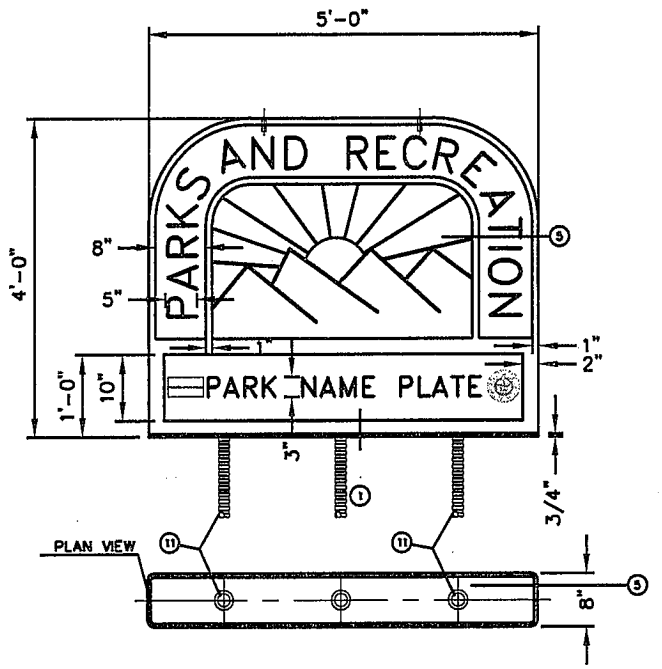
CITY OF EL PASO

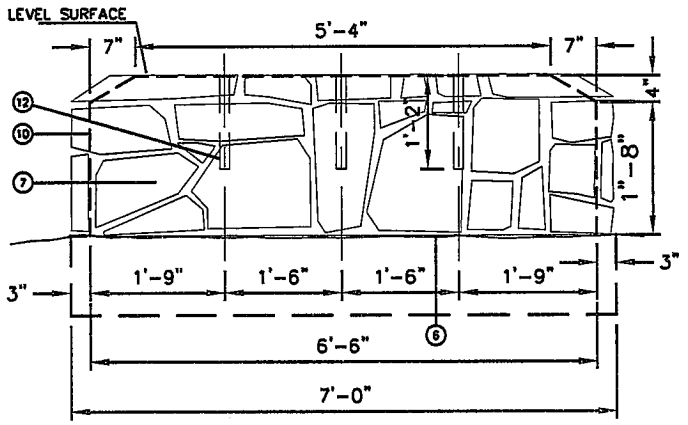
PARKS & RECREATION

DETAIL NAME

PARK RULES SIGN

NTS





PARK SIGN

KEYED NOTES:

1. PARK NAME BY SIGN MANUF.
2. EXISTING GROUND TO REMAIN UNDISTURBED. DISTURBED GROUND TO BE COMPACTED TO 90% AS PER ASTM D1557.
3. FINISHED GRADE, SEE GRADING PLAN
4. CONTINUOUS CONCRETE FOOTING.
5. PRE-CAST CONCRETE SIGN BY WASAU TILE, REFER TO SPEC.
6. 3000 PSI CONCRETE BASE
7. 2" ROCK VENEER,MOUNT. FRANKLIN ROCK.
8. 4 # 4'S CONT. W/#4 @ 12" O.C.
9. 12" ENGINEERED FIELD COMPACTED TO MODIFIED PROCTOR TO 95%.
10. CONCRETE BASE BY SIGN MANUF.
11. S/S STUD ANCHOR PROVIDED BY SIGN MANUF.
12. 3" X 14" DEEP LEAVE-OUT FOR ANCHORING SIGN.BY SIGN MANUF.
13. PROVIDE GROUT & CEMENT FOR LEVELING SIGN.

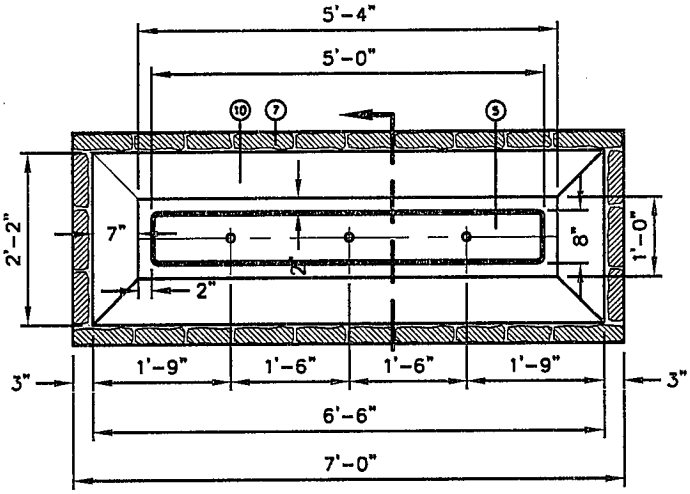
CITY OF EL PASO

PARKS & RECREATION

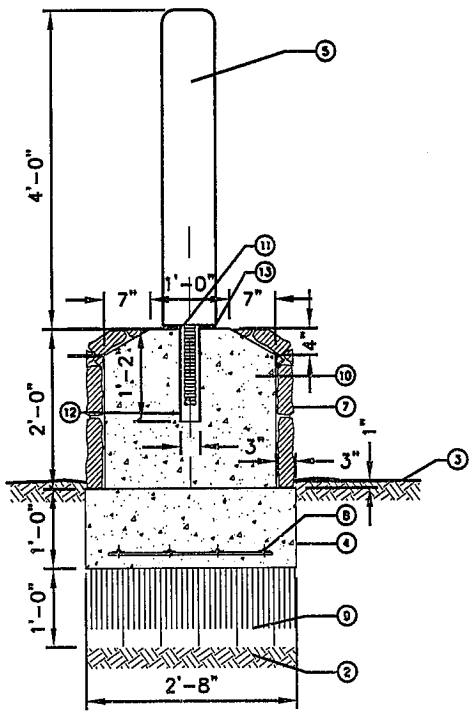
DETAIL NAME

PARK MONUMENT SIGN #1

NTS



PLAN VIEW



PARK SIGN SECTION

CITY OF EL PASO PARKS & RECREATION	DETAIL NAME PARK MONUMENT SIGN #2 NTS

Policy and Standards Manual for the Care of Trees and Shrubs in the City of El Paso

Winner of the 2001 Texas Community Forestry Award presented to the City of El Paso for protection and preservation of the State Champion *Pinus halapensis* during re-development and construction of the San Antonio Street transit plaza project.

City of El Paso, Texas

Brent Pearson – City Arborist
Street Department

Document Name:STREETS/1/BEST MANAGEMENT PRACTICES POLICY FOR THE CARE OF TREES
Document #: 23381
Author_Id: JFLO

TABLE OF CONTENTS

POLICY AND STANDARDS MANUAL ("Manual")
CITY OF EL PASO, TEXAS

1.0 INTENT AND PURPOSE

These policies and standards are issued through the El Paso Tree Board to establish specific technical regulations, standards and specifications for care and maintenance of trees and shrubs located on City of El Paso. ("City") right of way or property owned by the City, hereinafter referred to as public property, and to achieve the City's tree and shrubs preservation and protection goals. These goals are intended to provide consistent care and serve as indicators to measure achievement in the following areas:

- Ensure and promote preservation and expansion of the existing tree and shrub canopy cover on public property.
- Provide standards of maintenance required for trees and shrubs located on public property.
- Provide for the protection and replacement of trees and shrubs located on public property.
- Establish criteria for determining when a tree or shrub is unsafe and a possible threat to public health, safety and welfare.
- Increase the survivability of trees before, during and after construction conducted on public property by providing and implementing protection standards and best management practices.
- Enhance the quality of life in El Paso.

2.0 PROJECT ARBORIST REQUIRED

A qualified Arborist or Project Arborist knowledgeable in current arboriculture practices (to be known as the Project Arborist) shall be part of the team of professionals planning, designing and supervising any public improvements or projects on property owned or controlled by the City of El Paso which may affect established trees or shrubs or the placement of new trees or shrubs.

The Project Arborist may be a City employee or a qualified arboricultural professional. A Project Arborist shall be familiar and comply with the requirements of this manual to increase the survivability of trees and shrubs before, during and after construction conducted on public property by providing and implementing the protection standards and best management practices contained in this Manual.

3.0 TREE AND SHRUB PLANTING SPECIFICATIONS

These planting specifications shall apply for all new trees and shrubs within City right-of-ways, parks or other public property. City Departments, contractors, and Project Arborists shall incorporate the following specifications into bid documents and/or contracts for projects on property owned or controlled by the City of El Paso.

4.0 PLANTING STOCK AND MATERIALS

All plants and trees installed on public property shall conform to the most current edition of the American Standard for Nursery Stock ANSI Z60.1.

4.1 Plant Quality.

It is the contractor's responsibility to supply stock that meets the American Standard for Nursery Stock ANSI 760.1 (or latest edition) and to comply with Policy and Standards for the care of trees in the City of El Paso as described in this Manual.

4.1.1
Plants shall be sound, healthy, vigorous, and free of plant disease and insect pests and their eggs.

4.1.2
Root balls of delivered plants shall not be contaminated with non-desirable weeds to include but not limited to nut sedges, common bermuda grass, chaff weed, or their seeds, stolons, underground plant parts such as rhizomes or tubers and other plant parts that could germinate, or escape and spread to the surrounding landscape.

4.1.3
Container stock shall be grown for at least 8-months in containers in which plants are delivered and shall not be root bound or have girdling roots.

4.1.4
Container stock shall also not be contaminated with non-desirable weeds (see 4.1.2).

4.1.5
Trees shall not have been topped, headed or skinned.

4.1.6
Trees with broken tops, branches, injured trunks, girdling roots, broken root balls, signs or symptoms of disease, insect infestation, contaminated soil with non-desirable weeds, unnatural form and general poor quality as determined by the Project Arborist not meeting or exceeding the standards above shall be rejected.

4.1.7
The Project Arborist shall inspect and verify, in writing, that all plant material to be installed on the site meets or exceeds the above standards.

4.2 Miscellaneous Materials
The following materials are recommended unless otherwise specified:

4.2.1
Tree stakes - Support stakes shall be treated 2-inch diameter wood poles or metal tee posts, two stakes per tree or equivalent approved by City Arborist. No cross brace shall be used. After installation, stakes shall be trimmed so that branches clear the top of the stake.

4.2.2
Tree Ties - Such as VIT cinch-tie™ system, or equivalent approved by the City Arborist shall be used and installed in a figure eight fashion to support the tree to the stakes. The use of wire through a garden hose or similar method is not to be used.

4.2.3
Mulch – Preferred organic mulches shall be screened untreated wood chips 1/2- to 1-inch in size, shredded wood chips, cypress bark or pecan shells. Preferred inorganic mulch shall be ¾" gravel. Other organic or inorganic mulches such as crusher fines or chat, or larger bark or gravels may be used if approved by the City Arborist. All mulch should be kept at least two inches away from the trunk and shall be applied to each tree, mulches shall be spread to a minimum 2-inch depth no more than 4 inches deep and out to the edge of the planting area.

4.2.4
Root Control Barriers - Barriers will be used along all public sidewalks, as indicated on approved plans and drawings. An 18-inch or greater linear barrier such as Deep Root® UB18-2 control barrier or equivalent shall be used. A 10-foot length shall be placed on center with the tree and on the sidewalk side only. Root barrier boxes shall not be used.

4.2.5
Mower guards - For trees in turf areas requiring regular mowing, the tree stem shall be protected with ArborGard+® or equivalent as approved by the City Arborist.

4.2.6
Tree Grates- Where tree grates are specified metal tree grates shall be used. Grate sizes shall meet the minimum area requirements for tree pit sizes as specified in "Planting Site Preparation" below. All tree grates shall be mounted in frames inset into a concrete foundation within the sidewalk or surface material and shall be flush with the surrounding surface.

5.0 PLANTING SITE PREPARATION

5.1 Soil Preparation and Conditioning

All construction debris including wood chips, pavement or concrete, and rocks over 2-inches in diameter shall be removed from planting areas to a minimum of 12-inch depth.

5.2 Tree Pits or Planting Holes

5.2.1
Confined planters or sidewalk areas shall have a minimum width of 4 feet. All construction debris and rocks over two inches shall be removed to a minimum of 36-inches deep x the width of the planting area. Scarify the sides of the excavated pit. Soil beneath the root ball shall be compacted to prevent settling.

5.2.2
In all other cases, minimum planting area and volume for tree pits per tree. (For size of tree species consult, the City of El Paso Plant list).

Small tree- 25 square feet of surface area and 75 cubic feet of soil.

Medium tree- 48 square feet of surface area and 144 cubic feet of soil.

Large tree- 100 square feet of surface area and 300 cubic feet of soil.

5.2.3
Excavate planting holes with slanting sides. Do not disturb soil at bottom of planting holes. Make excavations twice as wide as the root ball diameter and as deep or slightly less (two inches) than the distance between the top-most root in the root ball and the bottom of the root ball. Alternatively, excavate the hole slightly wider than the root ball and place the root ball in the hole so the top-most root is even with or slightly (2 inches) higher than the surrounding landscape grade. Then, loosen the surrounding soil out to a diameter equal to twice the diameter of the root ball. Finally, push the loosened soil toward the root ball to fill the hole.

Note:
It is strongly encouraged to increase planting area whenever possible, by designing continuous planting areas versus individual tree pits. Use of structural or engineered soils is also recommended and encouraged to increase rooting volume under paving stones and impervious surfaces.

5.3 Drainage

5.3.1
Planting percolation test. A percolation test is required to ensure there is adequate drainage for planting new trees and shrubs. A minimum of one test per development site is required. Additional tests may be required by the City Arborist. Fill planting hole with water and observe and record per hour rate of water dispersal from the hole. If percolation rate is less than 2 inches per hour, one or more of the following mitigation measures must be implemented.

5.3.2
Mitigation for locations with poor drainage:

5.3.2.1
Install a French drain. The trench shall radiate away from the tree and be a minimum of 18-inches in depth filled with drain rock. The grade shall fall away from the tree trunk.

5.3.2.2
Install drain tiles or perforated pipe directing water away from the tree.

5.3.2.3
Install a drain chimney at the bottom of the planting pit, a minimum of 4-inches in diameter and filled with medium sand or fine gravel to ensure percolation of all water from the filled planter pit. Auger bore drain holes to penetrate hardpan, caliche, or clay a minimum of 12-inches into undisturbed pervious soil. Angle the boring as close to vertical as possible.

6.0 PLANTING THE TREE

6.1 Depth

To determine the proper depth of the root ball, place the tree in the hole and lay a pole or shovel handle across the original grade - the top of the root ball with the top most root exposed should be at grade or slightly higher (1 to 2-inches).

6.2 Container grown or balled and burlap.

6.2.1
Remove tree from the container, inspect the root system. There should be little or no circling roots visible on the outside of the root ball.

6.2.2
If there are thin circling roots: make three to four vertical cuts 1/2-inch deep around root ball, spread the bottom roots out if necessary.

6.2.3
If any circling roots are larger than 1/5 the size of the stem, the tree shall be automatically rejected. (See "Plant Quality" section 4.1)

6.2.4
If planting balled and burlap, remove all burlap, wire, string or other foreign material completely or at a minimum from the top 1/2 of the root ball.

6.3 Placing the Tree

Center the tree in the hole making sure it is level and plumb, and rotate the tree positioning its best side in the direction of principal view. In street tree plantings direct the main branches away from the street side, if possible.

6.4 Slope

When planting on a slope, the top-most main root in the root ball shall be even with the grade on the uphill side of the tree. Site soil will need to be added on the downhill side to cover the sides of the root ball and to construct the soil berm to hold water. The amount of soil added on the downhill side will depend on the slope and size of the root ball.

6.5 Filling the Hole

Fill the hole halfway up with original soil, and gently tamp out air pockets with a pole or shovel handle. Add about 1-inch of water, and let drain. Fill the rest of the hole to grade, water the fill soil, and let drain. Do not place backfill soil over the top of the root ball. (Amended soil shall not be used unless specified or approved by the City Arborist.)

6.6 Staking

When required by the project specifications or when deemed necessary by the City Arborist. Place the stakes beyond the edge of the root ball (drive them into undisturbed ground until solidly anchored), and avoid contact with the branches or roots. If in a windy area, set the stakes in a plane at right angles to the wind. Remove the nursery stake. Loosely place two ties in a figure eight around the trunk, as low as needed to hold the tree upright and attach to the stake. Wooden stakes shall be trimmed so that the branches clear the top of the stake and metal stakes must be driven into the soil so that the top of the stake does not interfere with any branches. Do not install a cross-brace. Staking is not always necessary, it should be determined on a case-by-case basis whether to stake or not. Stakes should be able to be removed after one growing season.

6.7 Berm, Mulch and Water

In non-turf areas, form a soil berm 3 to 4-inches high X 6-8 inches wide at the outermost edge of the root ball. Place 1 to 2-inches of mulch over root ball and berm, keeping the mulch away from the trunk a minimum of 2-inches. Fill the berm with water. Exception: if the tree is irrigated by drip system no berm is needed.

6.8 Turf Areas

No turf shall be allowed within a minimum of three-foot radius from the new tree stem for a minimum of three years. Existing turf shall be removed to comply with this requirement when necessary. In turf areas only organic mulch shall be placed on top of the root ball and planting area and replenished as needed. The mulch shall not be touching the tree stem. The installation of a tree guard is required for new trees in turf areas.

7.0 PLANTING IN DIFFICULT SOIL CONDITIONS

Occasionally, tree planting must occur in poor or difficult soil where standard-planting techniques will result in poor-to-average performance or mortality of the tree (such as unique or unusual substrate, slope, soil volume, restrictive physical or chemical properties, poor drainage, etc.). In this case, the Project Arborist must investigate alternative solutions to enable long-term tree growth. Alternative planting specifications or plans that vary from these standards for normal conditions contained in this Manual shall be submitted to the City Arborist for approval prior to installation. Request for the use of alternative or non-specified soils, such as engineered, amended or structural urban tree soil mix, shall be submitted with the manufacturer's specifications for product use and a physical sample for approval by the City Arborist prior to installation.

8.0 MAINTENANCE OF TREES AND SHRUBS LOCATED ON PUBLIC PROPERTY AND THE AMERICAN NATIONAL STANDARDS INSTITUTE

This section establishes the minimum standard of care and maintenance for trees and shrubs located on public property. These standards apply to employees of all City Departments and contractors who are engaged in the business of installing, repairing, maintaining, or preserving trees and shrubs located on public property owned or controlled by the City of El Paso. These standards are derived from the American National Standards Institute (ANSI A300 standards Parts 1-6) and the Best Management Practices (BMP) companion publications which are the standards set and used by the Arboricultural Profession.

Copies of the ANSI standards and BMP publications are available electronically at http://www.ansi.org/ or http://www.isa-arbor.com/home.aspx under publications. They are also available for inspection at the office of the City Arborist.

If special situations require a variance from these standards, written approval from the City Arborist must be obtained by the responsible City department head.

9.0 SAFETY STANDARDS

City departments and City contractors shall comply with safety requirements as set forth in ANSI Z133.1-2000 for arboricultural operations.

10.0 PROHIBITED ACTS

Improper maintenance may constitute a prohibited act as defined by the El Paso Municipal Code, **blank** and a violation which may be subject to penalty. Prohibited maintenance practices for trees located on public property are listed below.

10.1 Excessive Pruning means:

Removing in excess, one-fourth (25 percent) or greater, of the functioning leaf, stem or root area. Pruning in excess of 25 percent is injurious to the tree and is a prohibited act. Excessive pruning typically results in the tree appearing as a 'bonsai', 'lion's-tailed', 'lolly-popped' or overly thinned unbalanced crown. Excessive pruning may include the cutting of any root two (2) inches or greater in diameter and/or severing in excess of 25 percent of the root system of any tree or shrub. Excessive pruning also includes removal of the leaf or stem area predominantly on one side, topping, or excessive tree canopy or crown-raising. Exceptions are granted when clearance from overhead utilities or public improvements is required or to abate a hazardous condition or a public nuisance.

10.2 Topping:

Topping is the reduction of a tree's size using indiscriminate internodal cuts or heading cuts that shorten limbs or branches back to a predetermined crown limit. This is considered excessive pruning. Exceptions are granted to preserve or restore the crown after storm damage, as approved by the City Arborist.

10.3 Tree Injury Prohibited:

Climbing and pruning practices shall not injure the tree except for the pruning cuts.

10.4 Other prohibited actions:

Taking any action foreseeable leading to the death of a tree or shrub or permanent damage to its health, including but not limited to excessive pruning, cutting, girdling, poisoning, improper irrigation, unauthorized relocation or transportation of a tree, or trenching, excavating, altering the grade, soil compaction, or paving within the drip line area of a tree.

11.0 STANDARDS FOR PRUNING

All work on trees and shrubs located on public property by city employees or city contractors shall be in accordance with the most current edition of the following industry standards:
Standard Practices for Tree Care Operations - ANSI A300 (Part1) and the corresponding Best Management Practices (BMP) companion publication. (Sample specifications can be found in the Best Management Practices (BMP) companion publication to the ANSI A300 Part 1 Standard Practices, Pruning).

11.1 Pruning Mature Trees

The four types of pruning that may be required for use on mature trees located on public property in order to meet pruning objectives are:

11.1.1
Cleaning - The selective removal of one or more of the following parts: dead, diseased, and/or broken branches. Cleaning is done at anytime to reduce risk and remove the possibility of the movement of decay, insects or disease from dead or dying branches into the rest of the tree.

11.1.2
Thinning - The selective removal of live branches to reduce crown density. Thinning is focused at the outside edge of the crown because the majority of small branches are in that area. Proper thinning retains crown shape and should result in an even distribution of branches and foliage throughout the crown.

11.1.3
Raising - The selective removal of branches to a predetermined height to provide vertical clearance for pedestrian and vehicular traffic.

11.1.4
Reduction - The selective pruning to decrease height and/or spread of the crown. Consideration shall be given to the ability of a species to tolerate this type of pruning. This type of pruning is done to minimize the risk for limb failure, for utility line clearance, or to remove vegetation away from buildings or other structures.

11.2 Pruning Young Trees

Young tree pruning shall be limited to the removal of dead, broken, or diseased branches at the time of planting. All branches shall be retained on the lower trunk for a minimum of two years. Young trees shall be inspected and pruned if needed during the second year after planting, and henceforth be inspected annually to determine if any corrective pruning is needed in order to improve health and structure. A central leader or leaders, as appropriate, should be developed. Strong properly spaced scaffold branches should be selected and maintained with inferior branching removed.

11.3 Timing of Pruning
To reduce the probability of insect infestation, disease or infection, the following seasonal restrictions apply, except when public safety is a concern.

11.3.1
All species - Do not prune during or soon after the initial flush of shoot growth in the spring (March to April).

11.3.2
Deciduous trees (leafless in winter) - Best pruned November- February before bud break.

11.3.3
Hazardous conditions - Any species may be pruned any time of the year for abatement reasons.

11.4 Tree Workers
Pruning should not be attempted by construction or contractor personnel, but should be performed by a qualified tree care specialist or certified tree worker, according to guidelines contained within the pruning section of this Manual.

Note:
If a tree has been damaged by injury or disturbance, delay pruning until deadwood becomes evident (typically 1-3 years after injury). Crown cleaning (see 11.1.1) is then recommended.

12.0 FERTILIZING STANDARDS

This section outlines performance standards for fertilizing and applies only if fertilizing is needed. The reason for fertilizing is to supply nutrients determined to be deficient to achieve a clearly defined plant management objective. This objective should be accomplished in the manner most beneficial to the plant and the environment.

12.1 Specifications

Fertilizing, if needed, shall be performed to the ANSI A300 (Part2)-2004 Fertilization Standards and the companion BMP publication.

12.1.1
Material and Rates- For best results the fertilizer ratio should be adjusted based on local knowledge, site conditions, species, age, and/or condition of the tree.

12.1.2
Application - For surface and subsurface applications the fertilizer formula shall be a slow-release nitrogen fertilizer with a minimum 50 percent WIN (Water Insoluble Nitrogen). Nitrogen may be applied at a rate of between 2 and 4-pounds of actual nitrogen per 1000 square feet and should not exceed 6 pounds of actual nitrogen per 1000 square feet within 12 months.

12.1.3
Sampling - Extraordinary cases may require soil and tissue sampling to correct target deficiencies. Foliar applications, trunk injections or implants shall only be used when soil application of fertilizer is impractical or ineffective in achieving fertilization objectives. All products shall be used in accordance with manufacturers' recommendations.

12.1.4
Salt index - Use of fertilizers with a salt index of more than 50 is not permitted. (Reference the companion publication, table 2, page 9 of the Best Management Practices for Tree and Shrub Fertilization. ANSI A300 part 2)

12.1.5
Timing - Timing should not be detrimental to tree health. Best results are derived from applications made during the growing season. Apply fertilizer between May through September for best results.

13.0 WATERING SCHEDULE

The watering of existing and new trees shall follow these minimum standards. Periods of extreme heat, wind or drought may require additional application of water beyond the amounts recommended in these specifications. The method and amount that is applied may vary depending upon soil composition, heat, wind, nearby competition such as turf or ground cover, periods of abnormal rainfall or in poorly drained soils.

13.1 Frequency

13.1.1
New trees - During the establishment period (1-3 years) trees/shrubs shall be watered thoroughly to their root ball depth as frequently as needed but no less than 2 times per week for the first twelve months and no less than once per week for the next twenty four months.

13.1.2
Mature established trees - All established low and medium water use trees (as characterized by the approved City of El Paso Tree and Plant List) shall be deeply soaked at least once a month throughout the year to thoroughly wet the soil profile to the drip line of the tree to a minimum depth of 12 inches and preferably to a depth of 18 inches. Additionally high water use trees shall be deeply soaked twice a month during the spring windy season and hot summer months before monsoon season arrives.

13.2 Watering Methods

One or more of the following methods of water application may be utilized to meet watering requirements unless unique site circumstances require specification of a specific installation or method of irrigation as approved by the City Arborist.

13.2.1
Automated Watering Systems - All newly planted trees and shrubs shall be provided with one of the following automatic watering systems using drip irrigation. All irrigation installations are to be consistent with current State and City regulations. A continuous loop or loops of drip tubing or individual distribution lines with emitters circling around the trunk of the tree/shrub shall be installed as follows:

13.2.1.1
For new trees / shrubs in 15 to 20 gallon containers, the loop or line of emitters shall be placed at the mid-point between the trunk and the edge of the root ball and a second loop or emitter array shall be placed 12 inches outside the edge of the root ball in native soil.

13.2.1.2
For new trees /shrubs in 24 to 36 inch box containers and greater, a second loop of drip tubing is required at a point just beyond the root ball on native soil and a third loop shall be placed 18 inches outside the second loop or line of emitters.

13.2.1.3
Tree irrigation systems shall be designed to accommodate installation of additional loops as the tree matures.

13.2.1.4
Micro bubblers rated in gallons per hour. One or more bubbler heads mounted on flexible tubing are to be placed adjacent to or on top of the root ball sufficient to soak an area twice the diameter of the root ball around the tree/shrub.

13.2.2
Hand watering or manually operated systems are required for trees and shrubs that must be watered to ensure tree survival during the course of construction until automatic irrigation is installed or reactivated, or as a supplement to automatic irrigation systems during the initial establishment period of new trees, temporary failure of the automatic system during periods of exceptional stress or as may be directed by the City Arborist.

13.2.2.1
Flood watering - Newly installed trees must be 'flood or basin watered' on top of the root ball to allow the water to infiltrate through the root zone.

13.2.2.2
Subsurface - Injections may be substituted for basin application in hard, compacted soils or steep hillsides.

13.2.2.3
Soaker hose - Slow, deep watering using a garden-type soaker hose.

13.2.2.4
Amount - For all trees the volume of water applied at each irrigation cycle shall be sufficient to thoroughly infiltrate the soil profile of the rooting area to a minimum depth of 12 inches and a preferred depth of 18 inches.

14.0 SOIL IMPROVEMENT AND REMEDIATION

Soil amendments are not permitted unless specified in an approved landscape design or as directed by the City Arborist.

14.1 Soil compaction

Compaction of the soil is the largest single factor for the decline and failure of landscape plantings. Every effort shall be taken to avoid compaction of soil porosity within existing landscaped areas in a defined tree protection zone during construction or in areas slated for landscaping. During construction 90% of the damage to the upper 18 inches of soil occurs with the first pass of heavy equipment and cannot be naturally reversed.

14.1.1
Mitigation - When required for mitigation of prohibited actions the following standards for improvement of damaged or compacted soil shall be implemented.

14.1.1.1
Soil Turning - Areas which have been compacted shall be ripped, disked or plowed to a minimum depth of twelve inches to improve soil porosity before planting.

14.1.1.2
Radial Trenching - (preferred) with an air excavator, excavate a soil trench 3 to 6-inches wide and a minimum of 12-inches deep commencing (approximately) 3-feet from the trunk out to the drip line area. The trenches shall radiate out from one foot apart at the closest point. Backfill the trench with a 50/50 mixture of native soil and composted material.

14.1.1.3
Vertical Mulching - auger holes 2 to 4-inch diameter, 2 to 3-feet deep, on 4-foot centers and backfilled with a 50/50 mixture of native soil and composted material.

14.1.1.4
Soil-fracturing – Using a probe attached to a pneumatic device.

14.1.1.5
Subsurface - Injections of water under moderate hydraulic pressure using a three foot probe and applied on 3-foot centers under the drip line.

15.0 TREE PROTECTION

Destruction or damage of trees prohibited. Chapter (city code) makes it unlawful for any person on public property owned by the City of El Paso to intentionally damage, cut, carve, abuse, poison or otherwise harm or injure any tree except in the performance of properly authorized and directed duties of an City employee or a private contractor pursuant to the specific terms of contract with the City conducted in conformity with this Manual. City Departments are responsible for making their employees or any contractors under their supervision are aware that trees and shrubs are considered valuable public property comprising part of the existing city infrastructure and as such, are afforded full protection by City ordinance.

15.1 Tree Protection and Preservation Plan (TP&PP)

Prior to commencement of a development project constructed on public property, City Departments shall engage a Project Arborist to prepare a Tree Protection and Preservation Plan if any activity is anticipated within the drip line of a tree.

15.1.1
Plan - The TP&PP shall assess all impacts to existing trees and shrubs; develop and recommend appropriate construction guidelines to protect site trees or mitigation to reduce adverse impacts upon them.

15.1.2
The City Arborist shall review and approve the TP&PP prior to issuance of any building permits.

15.2 Pre-Construction Requirements for Construction on Public Property

15.2.1
Site Design Plans - All improvement plans for the project shall contain an accurate depiction of all trees and shrubs or groups of trees and shrubs to be preserved or removed within the development area and shall be clearly plotted. In addition the plans shall accurately show the trunk diameter and drip line area, and shall clearly indicate the tree protection zone (TPZ) to be enclosed with the specified tree fencing as a bold dashed line.

15.2.2
Pre-construction meeting - A review of required tree protection measures, including approved haul routes, staging and storage sites, tree irrigation schedules, etc. shall be conducted with the demolition, grading and underground contractors, construction superintendent and other pertinent personnel at the site prior to beginning any work.

15.2.3
Verification - The Project Arborist shall verify that all preconstruction tree protection conditions have been met and that tree fencing is in place, before construction begins.

15.3 Tree Protection Zone (TPZ)
Each tree to be retained shall have a designated TPZ identifying an area sufficiently large enough to protect the tree and roots from disturbance. The minimum acceptable TPZ area shall encompass the drip line of the tree or the outer most drip line of a group of trees. The TPZ shall be shown on all site plans for the project improvements. Construction activities such as paving, utility and irrigation trenching and other ancillary activities shall occur outside the TPZ, unless authorized by the City Arborist. Unless otherwise specified in the approved TP&PP, the protective fencing shall serve as the boundary of the TPZ.

15.4 Prohibited activities within the TPZ.

15.4.1
Storage or parking vehicles, building materials, trash, excavated spoils or dumping of poisonous materials on or around trees and roots. Poisonous materials include, but are not limited to, paint, petroleum products, concrete or stucco mix, dirty water or any other material, which may be deleterious to tree health.

15.4.2
Using tree trunks as a winch support, for anchorage, as a temporary power pole, signposts or other similar function.

15.4.3
Cutting of tree roots by utility trenching, foundation digging, placement of curbs and trenches and other miscellaneous excavation without prior approval of the Project Arborist.

15.4.4
Altering drainage patterns toward or away from the tree or grade change.

15.5 Protective Tree Fencing

15.5.1
Size and type of fence - All trees to be preserved shall be protected by installation of a temporary chain link fence at least five (5') foot high. Temporary plastic mesh fencing may be substituted for the required chain link fencing requirements in emergency work situations or for short term projects upon approval of the City Arborist.

15.5.2
Installation - Required tree fencing shall be erected before demolition, grading or construction begins and shall enclose the entire TPZ of the tree(s) to be protected throughout the conduct of the project or until final site improvement work within the area

is approved after final inspection. Fences are to be mounted on two-inch diameter galvanized iron posts, driven into the ground to a depth of at least 2-feet at no more than 10-foot spacing. If the fencing must be located on paving or sidewalk that will not be demolished, the posts must be supported with a secure above grade footing or support.

15.5.3
Exceptions as Approved by the City Arborist

15.5.3.1
For trees situated within a narrow planting strip adjacent to walkways or streets, only the planting strip should be enclosed with the required chain link protective fencing.

15.5.3.2
In those cases where, in whole or in part, installation of the specified protective fencing is impractical or must be subsequently removed for approved project work, the exposed portion of the TPZ shall be provided with a root protection barrier of mulch no less than 4 inches in depth. Mulch material shall be 2-inch unpainted, untreated wood chip or bark mulch or approved equal.

15.5.3.3
Trees situated in exposed small tree wells or sidewalk planter pits shall be wrapped with 2-inches of approved padding material from the ground to the first major branch. In addition, 2-inch thick wooden slats bound securely on the outside of the padding by safety orange plastic material shall be installed. During installation of the wood slats, caution shall be used to avoid damaging any bark or branches. Major scaffold limbs may also require padding as directed by the City Arborist.

15.5.4
Protective tree fencing shall remain in place until final inspection of the project permit, except when earlier removal for completion of required work is specifically approved in the Tree Protection and Preservation Plan or subsequent approval is obtained from the City Arborist

15.6 Tree & Stump Removal

Removal of trees shall be by trained or certified tree workers in a manner that causes no damage above or below ground to nearby or adjacent trees. Before performing stump extraction, a determination shall be made as to whether or not roots may be entangled or grafted with trees that are to remain. If so, these stumps shall have their roots severed before extracting the stump.

15.7 Soil Disturbance or other Injurious and Detrimental Activity within a Tree Protection Zone (TPZ).

15.7.1
Soil Compaction - If compaction of the soil occurs, it shall be mitigated as outlined in the Soil Improvement and Remediation (Section 14.1).

15.7.2
Grading Limitations within the Tree Protection Zone

15.7.2.1
Grade fills over 6-inches or impervious overlay shall incorporate an approved permanent aeration system, permeable material or other mitigation as approved by the City Arborist.

15.7.2.2
Grade cuts exceeding 4-inches shall incorporate retaining walls or an appropriate transition equivalent.

15.7.3
Trenching, Excavation and Equipment usage within the TPZ.

When permitted by the TP&PP or the City Arborist the following restrictions apply:

15.7.3.1
Notification - Contractor shall notify the Project Arborist a minimum of 24 hours in advance of the activity in the TPZ.

15.7.3.2
Root Severance - Roots that are encountered or injured shall be cut cleanly. Roots 2- inches in diameter and greater should remain injury free.

15.7.3.3
Approved excavation, demolition or extraction of material shall be performed with equipment sitting outside the TPZ. Methods permitted are hand digging and hydraulic or pneumatic air excavation technology. Excavation exposing roots, within the TPZ during extremely hot, dry weather, when temperatures are expected to be 95 degree F or higher is not permitted.

15.7.3.4
Excavation or trenching for drainage, utilities, or irrigation lines shall not sever any roots over 2-inches in diameter but may tunnel around the root. Trenches should be either cut by hand, air, water or vacuum excavation or, by mechanically boring under the roots. In all cases, installation(s) shall be completed immediately, backfill with soil and water the same day.

15.7.3.5
Heavy Equipment - Use of backhoes, steel tread tractors or any heavy vehicles within the TPZ is prohibited unless approved by the City Arborist. If allowed, a

protective root buffer is required. The protective buffer shall consist of a base course of tree chips spread over the root area to a minimum depth of 12-inches with place steel plates placed on top of the mulch where vehicles must drive. This buffer within the TPZ shall be maintained throughout the entire construction process.

15.8
Public Utilities - Public utility improvements or repairs shall be performed in accordance with this policy and standards manual except in emergency situations requiring restoration of services affecting public health and safety.

16.0 STANDARDS AND SPECIFICATIONS FOR HAZARDOUS TREES

To remove a tree, it must first be evaluated for risk and the tree determined to be "hazardous" as defined in this section. This is to avoid the unwarranted removal of sound trees on the grounds that they are hazardous. This must be verified in writing by the Project Arborist and approved by the City Arborist before the tree can be removed.

16.1 Tree Hazard Responsibility

On private property, it is the responsibility of the property owner to mitigate or abate a known hazardous condition of a tree that may be of questionable structure or deemed as hazardous. On public property, it is the responsibility of the managing City department to report to the City Arborist the possibility of risk to public safety or property. The City Arborist will then evaluate the tree and determine the risk.

16.2 Recognizing Tree Hazards

Determining whether or not a tree's defect constitutes a condition that presents an imminent hazard to an area requires a high degree of knowledge and experience. Hazard assessment of a tree should only be evaluated by a qualified arborist who is familiar with tree physiology and can interpret the external signs of weaknesses, and who can perform internal checks if necessary and follow-up with recommended mitigation.

16.3 Emergency Removal Conditions

When a tree or portion of a tree has failed or it is apparent it is about to fail and persons or properties are immediately threatened the tree or portion of the tree may be removed without City review or approval. The City does not require an arborist report before the removal in this instance.

16.4 Criteria Used By the City to Determine If a Tree Is Hazardous

16.4.1

Tree Evaluation Checklist - This section is intended to further help any City department managing trees to understand and identify tree defects. If you answer 'yes' to one or more of the checklist items, you should contact the City Arborist to discuss how to reduce the potential risk. (See Appendix A)

17.0 REMOVAL OF AND MITIGATION FOR REMOVING TREES

A tree located on public property may not be removed without City review and approval, except in certain emergencies. The purpose of City review is to verify that the removal is allowed under chapter (city code) and to prevent unnecessary tree removal. In some cases, a removed tree must be replaced by the City. This section describes the type and size of tree required, to determine the replacement value of a tree that cannot be replaced in its original location, and the circumstances in which the City may require a security deposit to assure the survival of trees during development projects.

17.1 Tree Removal Is Allowed If:

17.1.1
A tree located on public property is determined to be dead, hazardous, a detriment to an adjacent tree, or a Public Nuisance.

17.1.2
A tree trunk is touching or the basal flare is under the building footprint of an existing building (for example, uplifting foundation, contact or damage to eves, gutter, etc.).

17.1.3
In the case of street trees, the Streets Department Director approves the removal in writing after consulting with the Project Arborist.

17.1.4
In the case of park trees, the Parks and Recreation Department Director approves the removal in writing after consulting with the Project Arborist.

17.1.5
In all other cases the Department head gets approval in writing from the City Arborist.

17.2 Tree Removal Report

The Project Arborist will provide a written narrative describing the tree species (common and scientific name); location (in relation to street, structures and property line); size (DBH, height & crown spread); condition (foliage, vigor, structural integrity, etc.); life expectancy and prognosis (is the tree hazardous, in severe decline, property damage, etc.?) for each tree to be removed.

17.3 When Tree Replacement Is Required

17.3.1
Trees Located on Public Property - If the City authorizes removal of a tree because it is dead, dangerous, or a nuisance, no tree replacement is required but recommended. In all other cases, the tree must be replaced.

17.3.2
Protected Trees - When authorizing removal of a protected tree on the TP&PP, the City shall require tree replacement. The number and nature of the replacement trees shall be determined by the Project Arborist and approved by the City Arborist, taking into consideration the value of the tree removed and the site design.

17.4 Tree Canopy Replacement Standard for Onsite Tree Replacement

17.4.1
Species - The replacement trees shall be the same species unless the City Arborist determines that another species would be more suitable for the location.

17.4.2
Location - The location of the replacement tree on site shall be approved by the Project Arborist.

17.4.3
Size and number – (See Appendix B, Table 1)

17.4.3.1
Column 1 - Determine the leaf canopy of the removed tree by measuring the distance across the canopy at the widest point. The leaf canopy diameter of the tree shall be supplied within the Project Arborist report and will be used to determine number and size of replacement trees in Column 2.

17.4.3.2
Column 2 - Determine the number of replacement trees. The planting of new trees should equal the leaf canopy of the removed tree within a period of ten years. The minimum replacement for removal of any tree shall be two 24-inch box trees.

17.4.3.3
Column 3 - Alternative size of trees may be desired. The City shall have the option to plant an alternative size tree to accommodate site specific landscape needs or constraints, such as space, design or soil volume limitations.

17.5 Tree Value Replacement Standard

If a tree or trees cannot be replaced using the tree canopy replacement method, then the value shall be determined by using the most recent edition of the Guide for Plant Appraisal published by the Council of Tree and Landscape Appraisers, in conjunction with the Texas supplement obtainable through the International Society of Arboriculture Texas Chapter. The replacement value will be determined using one of several methods as outlined in the book. The Project Arborist and the City Arborist must agree on the appropriate method. The payment on the value determined will be deposited into a Special Tree Care Account.

17.6 Alternatives When Trees Cannot Be Replaced On Site

In some circumstances, crowding or other physical constraints make it impossible or undesirable to replace a tree on site. In that case, the value of the tree shall be computed under the Tree Value Replacement Standard. Funds deposited into the Special Tree Care Account will be used in the following order of preference, as approved by the City Arborist: (1) to provide additional trees in the vicinity ; (2) to add or replace street trees or other public landscaping in the vicinity, or (3) to add trees or other landscaping to other public property.

DEFINITIONS

ANSI: American National Standards Institute

BMP: Best Management Practices.

Cleaning is the selective removal of dead, diseased, and/or broken branches. Cleaning is done at any time to reduce risk and remove the possibility of the movement of decay, insects or disease from dead or dying branches into the rest of the tree.

ISA: International Society of Arboriculture

Hazardous
El Paso Municipal Code defines 'Hazardous' as: an imminent hazard or threat to the safety of persons or property. If a tree possesses a structural defect that may cause the tree or part of the tree to fall on someone or something of value (i.e. 'target'), and the condition is determined to be imminent, the tree is considered hazardous.

Raising is the selective removal of branches to a predetermined height to provide vertical clearance for pedestrian or vehicular traffic.

Reduction is the selective pruning to decrease height and/or spread of the crown. Consideration shall be given to the ability of a species to tolerate this type of pruning. This type of pruning is done to minimize the risk for limb failure, for utility line clearance, or to remove vegetation away from buildings or other structures.

Thinning is the selective removal of live branches to reduce crown density. Thinning is focused at the outside edge of the crown because the majority of small branches are, in that area. Proper thinning retains crown shape and should result in an even distribution of branches and foliage throughout the crown.

TP&PP: Tree protection and preservation plan

TPZ: Tree Protection Zone

APPENDIX A

Risk Evaluation Questionnaire

Target
If the tree or branch falls, will it hit cars, houses, structures, power lines or people? If so, immediate action may be necessary.

Dead Branches
Are there dead tops or branches larger than 2 inches in caliper? Is the tree dead?

Cracks
Are there deep, open cracks in the trunk or branches?

Holes
Are there hollows or woodpecker holes in the tree?

Wood Rot
Do you see fungi (mushrooms) growing out of the trunk, branches or near the base of the tree?

Tree History
Has the tree recently dropped a large limb?

Do you have knowledge of root severance, underground utility installation or grade change within the drip line of the tree?

These are major starting points for tree failure. If you have answered yes to 1 or more of these questions please consult with the City Arborist.

APPENDIX B

Tree Canopy Replacement Method

Example: The removal of a tree with a 39' crown spread will require four 24- inch box trees to satisfy the criteria of Section 17. Methodology e.g. the average canopy of a new tree is 4' wide + the expected canopy growth of 6" per year x 10 years = a 9' net canopy of one replacement tree. Thus, four 9' trees = 36' of new canopy, and is a close approximate to the original 39' canopy tree.

TABLE 1
** Replace the tree with a combination of both Tree Canopy and Tree Value Standards.
Note: Basis of this table is determined by the growth of one 24" box size tree, growing at a rate equivalent to 9 feet of canopy over the course of ten years.

Leaf Canopy Area (widest distance across the canopy)	Number of Replacement trees	Alternative size
4' – 9'	Two 24" box (minimum)	One 36" box
10' – 27'	Three 24" box	Two 36"
28' – 40'	Four 24" box	Two 48" box
40' – 56'	Six 24" box	Two 48" box & Two 36" box
56' – 60'	Two 24" box & Two 36" box + Two 48" box	**
60' +	**	**
Column 1	**Column 2**	**Column 3**